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WORLD DEMAND PROSPECTS FOR

BANANAS IN 1980

WITH EMPHASIS ON TRADE BY
LESS DEVELOPED COUNTRIES



FOREIGN AGRICULTURAL ECONOMIC REPORT NO. 69

U.S. DEPARTMENT OF AGRICULTURE • ECONOMIC RESEARCH SERVICE

FOREWORD

Bananas are of strategic importance in several developing countries. They represent an important source of foreign exchange in the 18 countries which export substantial quantities. Perhaps more significant, however, is the fact that this market has been expanding steadily during the 1950's and 1960's. Especially for the nine countries which account for approximately one-half of the world exports, this crop has been an important means of obtaining foreign exchange essential to development.

The primary question addressed by this analysis is whether the future demand for bananas can be expected to grow as in the past. Although the study indicates future prospects are generally bright, there does appear to be a saturation level in per capita consumption of bananas being reached in some developed countries. Hence, markets in some countries can be expected to grow much more rapidly than others. A further complicating factor will be the trade restrictions placed on bananas. Finally, past trends indicate production can be expanded, even to the point of producing surpluses during short periods. Clearly, orderly marketing of this perishable crop will be in the best interest of both exporting and importing nations.

This study was part of a research project on "Demand Prospects for Agricultural Products of Less Developed Countries" conducted by the Economic Research Service under a participating agency service agreement for the Agency for International Development.

Research on the demand prospects for agricultural exports of less developed countries was conducted under the direction of an ERS Technical Advisory Committee with Louis F. Herrmann as Chairman. Arthur B. Mackie and Anthony S. Rojko served as advisors and research leaders.



Senior Agricultural Adviser
Bureau of Technical Assistance
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SUMMARY

Alternative projections of world demand for bananas in the coming decade indicate that consumption and trade will increase from 4.6 million tons in 1964-66 to a range of 6.5 to 7.3 million metric tons in 1980. At the lower level world trade would increase 2.3 percent per year, or slightly more than the rate of growth in population (2.0 percent). World trade would exceed the rate of population growth by 1.1 percent per year at the higher level of demand.

Under the assumption of constant 1965 prices, the value of imports would increase from \$629 million in 1964-66 to a low of \$899 million and to a high of \$994 million by 1980 under alternative assumptions regarding consumption and import policies. The prospects for expanding banana production and export supplies to meet this demand are well within the capabilities of present banana producers. In fact, historically based projections of production indicate a potential surplus situation. Export values would be likely to decline 18 percent for each 16-percent increase in exports beyond equilibrium level of demand, but the sensitivity of supply to price precludes the likelihood of prolonged price declines.

The level of income per capita and income elasticity of demand in importing countries were found to be the most important factors affecting per capita banana consumption and thus the most useful tools for forecasting future demand.

World production of bananas doubled from 1948-52 to 1964-66 from 12.3 to 24.8 million metric tons, while over the same period, exports more than doubled, increasing from 2.3 to 4.8 million metric tons. Exports grew only slightly faster than production, with the average export share increasing from 18 percent in 1948-52 to 20 percent in 1964-66.

The value of world exports increased more rapidly than the volume over the period 1957-66, growing about 5 and 4 percent per year, respectively. Trends in exports among the various exporting countries diverged over this period. Nine countries, accounting for 46 percent of world exports in 1964-66, increased their value of exports faster than their volumes. For the other countries, the volume of banana export increased faster than did the value.

The major markets for the export of bananas are the developed countries, accounting for 91 percent of world imports in 1964-66. The United States is the largest single market, accounting for 37 percent, with the EC a close second at 29 percent of world imports in 1964-66. Japan is the most rapidly growing market and ranked third with 8 percent of world imports in 1964-66.

WORLD DEMAND PROSPECTS FOR BANANAS IN 1980:
WITH EMPHASIS ON TRADE BY LESS DEVELOPED COUNTRIES

by

Arthur B. Mackie and Jon E. Falck 1/

INTRODUCTION

National development planning in the less developed countries (LDC's) is very dependent upon the export prospects of primary commodities. Many developing countries depend heavily upon agricultural exports for exchange earnings to finance import of capital goods. In 1964-66, there were more than 60 LDC's with agricultural exports accounting for more than 50 percent of total export earnings. Because of the heavy dependence upon agricultural exports, fluctuations in export prices cause large variations in export earnings and total economic growth. These variations are especially large in the case of countries depending upon export earnings from only one or two commodities.

Developing countries need information on demand prospects for agricultural exports as a basis for planning and carrying out economic development programs. Further growth in export demand for agricultural commodities of the LDC's will influence the amount of resources that can be economically used for expanding production of export commodities.

This report is concerned with the future prospects for bananas -- a major export earner in a number of Latin American and African countries and, more recently, in Taiwan. The specific objective of this report is to estimate the long-term prospects of bananas as an export earner of foreign exchange in those developing countries presently producing or contemplating producing bananas. In ascertaining the prospects for export earnings, major attention is given to the analysis of demand in importing countries and to a lesser degree to the supply and demand in producing countries.

Basic Assumptions

For this report, the world was divided into 18 regions based upon economic, political, consumption, and production characteristics. Essentially, there are eight importing and developed regions and seven producing and less developed regions. Of the three central plan regions, two are importers (Eastern Europe and the USSR) and one (Communist Asia) is a producer and exporter. Analyses of demand, supply, and trade flows are summarized by the following regions:

1/ Arthur B. Mackie, Chief, Trade Statistics and Analysis Branch; Jon E. Falck, Economist, Economic Development Branch, Foreign Development and Trade Division, Economic Research Service.

Developed

United States

Canada

EC -- Belgium-Luxembourg, France, West Germany, Italy, and the Netherlands

United Kingdom

Other Western Europe (OWE) -- Austria, Denmark, Finland, Greece, Iceland, Ireland, Malta, Norway, Portugal, Spain, Sweden, and Switzerland

Japan

Australia and New Zealand

South Africa, Republic of

Central Plan

Eastern Europe -- Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and Yugoslavia

USSR

Communist Asia -- Mainland China, Mongolia, North Korea, and North Vietnam

Less Developed

Central America and Mexico -- British Honduras, Caribbean, including Cuba, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, and Panama

South America -- Argentina, Brazil, Bolivia, Chile, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Surinam, Uruguay, and Venezuela

East and West Africa -- All countries except North Africa (listed below) and Republic of South Africa

North Africa and West Asia -- Algeria, Libya, Morocco, Sudan, Tunisia, U.A.R. (Egypt), Bahrein, Cyprus, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Muscat and Oman, Qatar, Saudi Arabia, Syria, Trucial States, Turkey, and Yemen

South Asia -- Afghanistan, Bhutan, Ceylon, India, Nepal, and Pakistan

Southeast Asia -- Burma, Cambodia, Laos, South Vietnam, and Thailand,

East Asia and Pacific Islands -- Brunei, Taiwan, Hong Kong, Indonesia, South Korea, Macao, Malaysia, Pacific Islands, Papua, Philippines, and Singapore

In making estimates of long-term demand for bananas, 1964-66 was chosen as the base period and 1980 as the terminal point for projections. In making projections, the usual assumptions are made regarding no major changes from the base period in the political situation, trade policies, and restrictions on imports, or technological factors such as processing and handling of bananas. Changes in these factors not envisioned here would necessarily alter these results. The projections made in this report are based upon imperfect statistical data and are estimates of probable future levels of consumption rather

than forecasts of what will actually happen. Nevertheless, these projections may be useful to the LDC's as basic information to help them assess the feasibility of getting into banana production, expanding present production, or diversifying their export earnings base.

PRODUCTION

Production of bananas is limited to countries located in Latin America, Africa, Asia, and Oceania regions in the belt lying 30 degrees north and south of the Equator. Approximately 40 countries produce bananas for local consumption, but only about 18 countries export significant quantities. In most tropical countries, bananas are one of the major sources of carbohydrates and are considered a staple of the diet.

World production of bananas doubled from 1948-52 to 1968, from 12.3 million to 25.4 million metric tons (table 1). ^{2/} Over the same period, exports more than doubled, from 2.3 to 5.7 million tons. While exports grew slightly faster than production, the average export share was still only about 22 percent of total world production in 1964-66. The share of production exported differed significantly among the various countries, ranging from a high of 75 percent in Guatemala to less than 1 percent in some African and Asian countries (table 2).

Major Exporters

Countries that produce bananas primarily for local consumption include Argentina, Brazil, Paraguay, Venezuela, Cuba, Mexico, Haiti, Puerto Rico, the United Arab Republic, South Africa, India, Pakistan, Cambodia, Malaysia, the Philippines, Thailand, Mainland China, Australia, and several of the Pacific Islands. Countries that produce primarily for export (at least 25 percent of production exported and/or at least 5 percent of the world market) are Colombia, Ecuador, Costa Rica, Guatemala, Honduras, Panama, French Antilles, the British West Indies, and Taiwan. These countries are the major banana exporters and therefore are the focus of attention in this report.

Six countries produced over 900,000 tons of bananas in 1964-66. Of these, Brazil, Ecuador, and Honduras had a significant share of world exports (43 percent). Brazil was by far the largest producer, and while it produced primarily for domestic consumption by exporting only 4.8 percent of its crop, it accounted for about 4.5 percent of world exports. Ecuador and Honduras combined produced almost as much as Brazil but exported larger shares of production, together accounting for almost 40 percent of total world exports (table 2). The combined exports of India, Thailand, and Venezuela in 1965 amounted to less than 1 percent of the world total.

Exports of a number of countries were smaller in terms of absolute production, but they exported a larger share of their crop than the eight large producers. For example, Costa Rica produced about one-tenth as many tons of bananas as Brazil but exported 67 percent of its crop, accounting for about 7 percent of world trade in 1964-66. Both Costa Rica and Panama exported over 50 percent of their production and together accounted for about 14 percent of

2/ All tons in this report are metric.

Table 1.--World production of bananas, 1948-52 to 1968

Year	Area	Production	Yield per hectare	Exports	Percentage of production exported	
					1,000 hectares	1,000 tons
1948-52	944	12,315	13.1	2,343	18	
1952-56	1,021	13,307	13.0	3,080	22	
1957	1/993	14,200	14.3	3,506	25	
1958	1/1,050	16,700	15.9	3,624	22	
1959	1/1,108	17,900	16.1	3,928	22	
1960	1/1,144	18,400	16.1	3,999	22	
1961	1,284	18,382	14.3	4,044	22	
1962	1,315	18,672	14.2	4,000	21	
1963	1,471	20,182	13.7	4,282	21	
1964	1,505	21,360	14.2	4,344	20	
1965	1,668	23,714	14.2	4,767	20	
1966	1,669	23,691	14.2	5,222	22	
1967	1,688	25,012	14.8	5,244	21	
1968	1,697	25,448	15.0	5,657	22	

1/ Estimated from annual production totals from country economic reports. In some instances only export data is available, so that production is somewhat understated. Data on acreage is spotty. In many cases, bananas are interplanted with other tropical tree crops. Therefore yield figures must be viewed with caution in all years.

Source: (8, 9)

Table 2.--Production and exports of bananas, by country, 1964-66

Region or country	Production	Exports	World share		Share of local production exported
			Production	Exports	
	1,000 m.t.	1,000 m.t.			Pct.
Latin America					
South America					
Brazil	14,121	3,747	61.6	78.5	26.5
South America	9,517	1,781	41.5	37.3	18.7
Brazil	4,518	215	19.7	4.5	4.8
Colombia	644	256	2.8	5.4	39.7
Ecuador	3,187	1,281	13.9	26.8	40.2
Venezuela	802	15	3.5	.3	1.9
Surinam and others	366	13	1.6	.3	3.5
Central America	3,096	1,335	13.5	28.0	43.1
Costa Rica	484	323	2.1	6.8	66.7
Guatemala	110	82	.5	1.7	74.5
Honduras	974	569	4.2	11.9	58.4
Mexico	962	14	4.2	.3	1.5
Panama	550	329	2.4	6.9	59.8
Nicaragua and others	16	18	.1	.4	112.5
Caribbean	1,508	631	6.6	13.2	41.8
French Antilles	358	232	1.6	4.9	64.8
British Territories	506	356	2.2	7.4	70.4
Dominican Republic	253	43	1.1	.9	17.0
Others	391	0	1.7	.0	0
East and West Africa	1,066	416	4.6	8.7	39.0
Central Africa Republic	170	0	.7	.0	0
Ivory Coast	176	127	.8	2.7	72.2
West Cameroon	60	40	.3	.8	66.7
East Cameroon	73	54	.3	1.1	74.0
Congo (Kinshasa)	50	9	.2	.2	18.0
Dahomey	10	0	0	0	0
Ethiopia	43	13	.2	.3	30.2
Gabon	10	0	0	0	0
Guinea	88	27	.4	.6	30.7
Ghana	n.a.	1	0	0	0
Madagascar	162	22	.7	.5	13.6
Mozambique	25	16	.1	.3	64.0
Somalia	141	99	.6	2.1	70.2
Tanzania	12	0	0	0	0
Others	36	8	.2	.1	22.2

Table 2.--Production and exports of bananas, by country, 1964-66--Continued

Region or country	Production	Exports	World share			Share of local production exported
			Production	Exports	Pct.	
	1,000 m.t.	1,000 m.t.				
North Africa and West Asia	164	34	0.7	0.7	20.7	
United Arab Republic	66	1	.3	.1	1.5	
Sudan	10	0	.0	.0	.0	
Israel	49	17	.2	.3	34.7	
Lebanon	26	11	.1	.2	42.3	
Jordan	13	5	.1	.1	38.5	
South Asia	3,896	9	17.0	.1	.2	
India	3,194	9	13.9	.1	.3	
Pakistan	702	0	3.1	.0	.0	
Southeast Asia	1,410	5	6.1	.1	.3	
Cambodia	140	0	.6	.0	.0	
Thailand	1,063	5	4.6	.1	.5	
Vietnam, Republic of	207	0	.9	.0	.0	
East Asia and Pacific Islands	1,507	354	6.6	7.4	23.5	
Taiwan	416	303	1.8	6.3	72.8	
West Malaysia	330	21	1.4	.4	6.4	
Philippines	711	0	3.1	.0	.0	
Others	50	30	.2	.6	60.0	
United States	4	61	.0	1.3*	.0	
EC	0	18	.0	.4**	.0	
Other Western Europe	398	102	1.7	2.1	25.6	
Australia	124	0	.5	.0	.0	
South Africa	64	0	.3	.0	.0	
Communist Asia	167	30	.7	.6	18.0	
Mainland China	167	23	.7	.5	13.8	
North Vietnam	n.a.	7	n.a.	.1	n.a.	
World Total	22,922	4,777	100	100	20.8	

*Reexports

n.a. = Not available

Source: (8, 2)

total world banana exports. Countries such as Jamaica, Martinique, the Cameroons, Ivory Coast, Somalia, and Taiwan each produced less than 500,000 tons but exported more than 50 percent of their production. These countries, however, accounted for a relatively small share of world trade in bananas.

Factors Affecting Commercial Production of Bananas for Export

Major factors affecting the commercial production and distribution of bananas include the process by which bananas are produced and distributed, the ways in which the industry is organized in the various countries, and the impact that these factors have upon the magnitude and direction of banana trade. Of crucial importance are the botanical characteristics of the plant itself and its fruit. From these special characteristics spring the economic costs and opportunities associated with commercial production of bananas for export.

Natural Factors Affecting Production

Bananas grow best in hot, humid, tropical areas where temperatures remain between 55° and 105° Fahrenheit and where large quantities of water are available throughout the year. Ideally, the soil should be fertile, well-drained, neutral in acidity, and well-aerated.

The banana plant is basically a rhizome at the soil surface from which fruiting shoots arise (1). Only one shoot is allowed to grow at any one time and this becomes the conspicuous "banana tree," comprising the pseudostem, or false stem of tightly wrapped bases of leaves, topped by numerous spreading leaves. About 12 sound leaves are required to produce the average marketable stem of bananas. A single flowering stem emerges through the center of these top leaves and produces one stem of bananas. Depending on the vigor of the plant, the stem will have about 12 "hands of bananas." A mature stem of bananas weighs from 30 to over 100 pounds and suspends from the upper part of the plant. The "tree" is cut when the stem is harvested, but in the meantime, one other shoot, the "daughter" shoot, has been allowed to grow and timed to blossom shortly after the "grandmother" is cut and another "granddaughter" shoot has been selected. As many as eight or ten "granddaughters" will sprout but only one is allowed to grow. The one allowed to grow is so selected that the rows are maintained and the whole planting "moves" in the same direction. Management of this succession of fruiting to provide a continuous supply of bananas to a shipper and a series of harvests from a given area requires a large supply of labor. Bananas can be harvested roughly 12 to 18 months after planting, thus making it relatively easy to move into or out of production. The banana tree with a mature stem is a top-heavy plant, making it highly susceptible to damage from tropical windstorms, and posing a huge economic risk to producers. For example, 6 million stems were lost due to wind damage in Honduras during 1957 (33). Based on an average weight of 75 pounds per stem, this amounts to a loss of over 200,000 tons of exportable fruit, or over 50 percent of actual exports in that year.

The most important single factor affecting banana production is disease. Among the several kinds of diseases attacking the banana plant, the two most important are Sigatoka disease (leaf spot) and Panama disease (fusarium wilt). Sigatoka disease is peculiar to bananas and affects the plant through restriction of the ripening process, shrinking in size, and deformation of the fruit.

Sigatoka attacks almost every major variety of banana produced. Control can be a large expense item, depending upon the method and frequency of protective spraying (1, p. 140).

Panama disease is a fungus that spreads through the soil, attacks the root system of the plant and eventually destroys it. This fungus can be spread by irrigation water, drainage, animals, men, and even equipment. The disease has been responsible for the destruction of large areas of plantations in Central America, Dominican Republic, Jamaica, Colombia, and the Cameroons.

Until the late 1950's, the two major methods of controlling Panama disease were flood fallow programs and simple abandonment of disease lands. A flood fallow program requires the construction of dikes and taking the acreage out of production for years. Abandonment of stricken areas sacrifices large sunk costs in initial development and requires further expenditures to open new lands. The United Fruit Company estimated that banana lands (including improvements) abandoned because of disease in Central America represented an investment of about \$2,000 per acre as reckoned in 1958 prices (1, p. 150, 33, p. 145).

A third potential solution to the disease problem is the development of new disease-resistant banana varieties to replace the Gros Michel which is highly susceptible to Panama disease. As of 1958, the United Fruit Company was budgeting about \$1 million per year in research, primarily connected with disease control (33, p. 93). The Valery banana (a Cavendish variety), which is highly disease-resistant, was developed as a result of this intensive research. Large plantings were begun in 1963. Nevertheless, there is no certainty that Panama disease problem has been solved permanently, because long-run immunity from this adaptable spore has not yet been established. 3/

The first step in the establishment of a banana plantation (or smaller) unit) is the clearing away of jungle brush and the installation of a drainage system. In places where rainfall is either inadequate or unevenly distributed throughout the year, irrigation systems must be constructed. In some areas, flood control is an added requirement. Thus, initial investment costs can be large. During the 1950's, the estimated startup costs for a large (20,000 acre) Central American plantation were about \$20 million (over \$1,000 per acre), depending upon the amount of hydraulic engineering required (1, 33, p. 90). In contrast, estimated establishment costs for large farms in Jamaica during 1959 averaged only \$185 per acre (11). The cost of producing 1 pound of bananas for commercial export varies widely from area to area and from year to year and even varies on a given plantation.

All in all, floods, blowdowns, disease, chill, insect damage, and the resultant deficient quality of fruit can reduce potential marketable yields on a large plantation by an average of about 25 percent (1, p. 65, 33, p. 92). These risks are common to all banana-producing areas. But the incidence of any particular problem factor affecting production varies according to region. For example, although wind is considered less of a problem in Ecuador, production and quality control measures are less highly developed than in Central America,

3/ Panama disease has not been cured but its problems have largely been resolved by moving to the production of other varieties to a point where the Gros Michel variety is rapidly disappearing (27).

so that the wastage factor in Ecuador has been estimated to be as high as 31 percent of all production (15, p. 6). The above discussion indicates some of the ways in which the botanical characteristics of the banana plant can affect the quantity and costs of production for exports.

Although there are many varieties of bananas, the two most important types in trade are the Gros Michel and the Cavendish. The Gros Michel is a taller plant producing symmetrical stems with large fingers. Its advantage lies in its attractive appearance, storability, and good handling qualities. However, Gros Michel, which is rapidly disappearing in international trade (27), has several drawbacks, the most important of which are the relatively low yield per acre and its high susceptibility to wind damage and Panama disease. The lower-growing Cavendish is resistant to fusarium wilt and has relatively high yield per acre. It is also more costly to cultivate. The major drawback of the Cavendish is its greater susceptibility to bruising in transit.

Production and Distribution Process

The delicate nature of the fruit itself presents problems in handling from the harvesting stage through all subsequent handling stages. All bananas are harvested hard and green. Despite the firmness of the fruit, it is easily scuffed and bruised. These damages often do not appear until the final ripening stage when the banana turns yellow and is ready for retailing.

A further characteristic of critical importance is perishability. With the most modern shipping and refrigeration techniques, the maximum time period which may elapse between harvesting and consumption is 4-5 weeks.

As soon as the bananas are harvested, they are graded according to size, shape, appearance, and maturity. Although there are no formal international grading standards, the fruit is classified according to commercial standards recognized within the banana trade. The bananas are then prepared for shipment, generally by packaging in boxes. The above steps are taken either at the plantation itself or at the port of origin, depending upon port facilities available.

Distances of farms to ports may vary from 10 to 300 miles (40, p. 9). In Central America, most of the fruit is shipped to ports by rail. Railcars are specially equipped for ventilation and bruise reduction. In other areas, where production is on smaller farms, shipment to port is usually by truck. Where modern port facilities exist, the fruit is loaded onto ships with large cranes containing a series of rubberized canvas pockets.

Until the early 1960's, bananas were usually shipped on-stem from the tropics, but in the past several years, growers and shippers serving major temperate zone markets (primarily United and Standard Fruit Companies) have converted to destemming and boxing of bananas at or near the production point. This conversion to boxed shipments, made possible by the Cavendish variety, has been a major factor in reducing physical handling of the delicate fruit by shifting more of the marketing process from importing to producing countries. This process has reduced labor costs and caused a rapid shift in production to the higher yield Cavendish banana. These developments have taken place

most rapidly in Central America, the Caribbean, Colombia, and Ecuador, where the United Fruit and Standard Fruit Companies have been most influential. Most U.S. and European shipments from these areas are now in boxes or cartons (27).

During the ocean transport phase, temperature must be carefully maintained between 52° and 58° Fahrenheit, depending on variety and maturity of fruit. Higher temperatures accelerate the ripening process with the risk of premature spoilage. On the other hand, at temperatures below 52° Fahrenheit (55° Fahrenheit for the Cavendish type) the peels turn a dark color, reducing marketability of the fruit.

At the port of entry, special equipment including vertical conveyor belts (for stems) and horizontal belts (for boxes) are used for unloading the ship and transferring the fruit to waiting refrigeration trucks. As stems move along the belts, the fruit is again graded according to quality and maturity. Bananas damaged in transit are discarded.

At this stage, the ripener or jobber usually takes possession of the fruit from the importer. The fruit remains in the ripening rooms for periods of several days up to about 2 weeks before final distribution to retail outlets. During this strategic final ripening stage, time, temperature, and humidity are carefully controlled so that the ripening process can be determined accurately for the day the fruit is needed at retail (1, p. 37).

The foregoing brief description of the process of distribution points up the strategic importance of the perishability of bananas. Harvesting must be precisely timed to meet market demand and coincide with arrival and departure of ships. Excess cutting results in wastage. Insufficient cutting results in unused shipping space and adds to costs. Improper timing results in longer turn-around times for ships and adds to demurrage charges. Finally, banana boats are specifically equipped to carry only bananas and must be nearly full to make the voyage profitable. Distance and time to market are obviously crucial factors to producers. These factors point out the need for an efficient, well-coordinated, well-integrated production-marketing chain, as does exist, in fact, as shown in table 3.

Impact of Major Factors on Trends in Banana Exports, 1957-66

The increase in banana exports after World War II, and more specifically during 1957-66, may be explained as a response to an increase in world demand for bananas. However, as pointed out earlier, there has been a wide variation in the export performance of individual countries. These fluctuations may be explained in terms of the natural hazards and the technological responses to them that have affected the size and quality of exportable banana crops.

Natural Factors

The rapid postwar surge in Ecuadorian exports was facilitated not only by vastly increased banana acreage but also by the relatively lower incidence of severe windstorms in Ecuador, compared with Central American and Caribbean countries. In fact, during the 1950's and early 1960's, the combined effects of widespread disease and/or hurricane destruction had caused large fluctuations

Table 3---Organization of banana industry for production and export in selected countries, late 1960's

Country	Major agency, corporation, or association whose functions includes coordinating production schedules, transportation to port, provision of credit, and infrastructure support <u>a/</u>	Major agency, corporation, or association which has effective controls of export marketing functions <u>b/</u>	Major shipper <u>c/</u>
Costa Rica	Tica Bananera (C) Bananera Atlantica (C) United Fruit (C) Standard Fruit (C)* BANDECO (C)*	Tica Bananera (1) Bananera Atlantica (2) United Fruit (53) Standard Fruit (38) BANDECO (7)	Tica Bananera or charter West Indies Fruit Company United Fruit or charter Standard Fruit or charter
Honduras	United Fruit (C) Standard Fruit (C)	United Fruit (67) Standard Fruit (33)	United Fruit or charter Standard Fruit or charter
Panama	United Fruit (C)	United Fruit (100)	United Fruit or charter
Guatemala	United Fruit (C)	United Fruit (100)	United Fruit or charter
Dominican Republic	Grenada Company (until 1965) Dominican Fruit Company INAPROGUI (G) (post 1965) *	Grenada Company (IUFs, 50) Dominican Fruit Company (50) INAPROGUI I	United Fruit or charter
Jamaica	AIGBA (CA) * Jamaica Banana Board (G) United Fruit (C)	Jamaica Banana Board (100)	Elders and Fyffes (UFs, 75) Jamaica Producers Ltd. (25)
Windward Islands	Colonial Development and Welfare (C) Barclay's Overseas Development (C)	WINBAN (100) sells exclusively to Van Geest Industries	Van Geest Industries
Spanish Canary Islands	Government agencies WINBAN (CA) * Van Geest Industries (C)	Numerous cooperative associations Numerous exporters	CREP (100)
Guadeloupe	Credit Agricole (G) Numerous cooperatives FEDEG (CA)*	SICAPEB - Negotiates contracts with sole shipper.	Compagnie Generale Transatlantique
	STICABAG (CA)* UNIBA (CA)* SICAPEB (CA)* CATAG (CA)* IFAC (CA)*		
	Numerous export firms (C)		

Table 3.--Organization of banana industry for production and export in selected countries, late 1960's--Continued

Country	Major agency, corporation, or association whose functions includes coordinating production schedules, transportation to port, provision of credit, and infrastructure support <u>a/</u>	Major agency, corporation, or association which has effective controls of export marketing functions <u>b/</u>	Major shipper <u>c/</u>
Martinique	Credit Agricole (G) SATEC (CA) STICABAN (CA)* IFAC	SICABAN - Negotiates contracts with sole shipper.	Compagnie Generale Transatlantique (2)
East Cameroon	Six cooperatives 15 large producers Compagnie des Bananes (C) Credit Agricole (G)	Compagnie des Bananes (UFS, 100)	United Fruit or charter (1)
West Cameroon	Large plantations Cameroon Development Corp. Bakwerie Cooperative Union (CA) Kumba Cooperative Union (CA)	Elders and Fyffes (UFS, 100)	United Fruit or charter
Ivory Coast	Numerous cooperatives ASSABAFAF (CA)* COBAFRUIT (CA) SOMARAF (CA)* IFAC *	COBAFRUIT (100)	--
Somalia	Numerous cooperatives Large plantations SACA (CA)* SAG (CA)* FEBAS (CA)*	SACA SAG FEBAS (Reduced marketing function after 1964)	--
Colombia	Government agencies	Compania Frutera de Sevilla (C) Federacion de Productores de Bananos (C) Consorcio Banano (C)	United Fruit or charter (17)
Ecuador	Export firms (C) Direccion Nacional del Banana (G) Banks Commissioned agents	Bananas, S.A. (SFC, 8) Compania Bananera del Ecuador (UFS, 14) Frutera Sud America (SFC, 5) Agricola San Vincente (SFC, 5) Exportadora De Bannanera Noboa	Standard Fruit or charter Standard Fruit or charter United Fruit or charter Standard Fruit or charter Standard Fruit or charter --

Table 3.--Organization of banana industry for production and export in selected countries, late 1960's--continued

Country	Major agency, corporation, or association whose functions includes coordinating production schedules, transportation to port, provision of credit, and infrastructure support <u>a/</u>	Major agency, corporation, or association which has effective controls of export marketing functions <u>b/</u>	Major shipper <u>c/</u>
Ecuador--Continued	(1)	UBESA (13) Exportadora de Frutas del Ecuador (11)	-- --
Taiwan	Producer associations Fruit and vegetable marketing cooperatives Land Bank of Taiwan Banana Production Supervision Group (G) Union of Fruit and Vegetable Marketing Cooperatives Taiwan Provincial Farmers Assn.	Union of Fruit and Vegetable Marketing Cooperatives (45) Taiwan Provincial Farmers Assn. (5)	-- --
Philippines <u>d/</u>	United Fruit Standard Fruit Philippine Packing Company (Del Monte)	United Fruit Standard Fruit Philippine Packing Company	United Fruit Standard Fruit Philippine Packing Company --

a/ (C) Corporation, (CA) Cooperative association, (G) Government agency, (Q-G) Quasigovernmental body. b/ (WIFs, c) Subsidiary or contractual affiliate of United Fruit Company. (SFs, c) Subsidiary or contractual affiliate of Standard Fruit and Steamship Company. (WIFs) subsidiary of West Indies Fruit Company. (Number) Number in parentheses indicates share of exports handled by the indicated agency. These percentages are only approximate and may vary somewhat in different years. c/ -- Indicates more than one major shipper. d/ Based on information in late 1960's. *Asterisk denotes abbreviated name of organization.

INAPROGU Instituto Nacional para Promocion del Guineo
All Island Banana Growers Association
Windward Islands Growers Association
Federation Departmentale Guadeloupeene des Societes d'Interet Collectif Agricole
Societe d'Interet Collectif Agricole de la Guadeloupe
Union Syndicale Bananiere
Societe d'Interet Collectif Agricole des Planteurs et Producteurs Exportateurs des Bananes
Cooperative Agricole de Traitements Antiparasitaires de la Guadeloupe
Institut Francais de Recherches Fruiterres
Societe d'Interet Collectif Agricole Bananiere
Association pour l'Africanisation de la Culture Bananiere et Fruitiere
SOMABAF Societe d'Assistance Technique pour la Modernisation de la Culture Bananiere et Fruitiere
SACA Societa Azionaria Coltivatori Agricoli
SAG Societa Agricoltori Giuba
Federacion dei Bananacoltori della Somalia
IFG Internationale Fruchtimport Gesellschaft, Hamburg, West Germany
BANDEGO Banana Development Company

Source: Based largely on information for the mid-1960's found in (15).

in the export supplies in all Central American countries, the French Antilles, Mexico, Nicaragua, Cuba, and the Cameroons. Production has been maintained in Costa Rica, Panama, Honduras, and Guatemala only through the efforts of the large banana companies which have huge resources of land, capital, and research facilities. In countries where such efforts have not been made, particularly Mexico, Cuba, the Dominican Republic, and Nicaragua, exports in recent years have dropped severely to insignificant levels.

In more recent years, short-term, but significant, fluctuations in exports attributable to wind and disease have been observed in the Central American countries, Colombia, Taiwan, and the French Antilles.

Technological Factors

In response to the ravages of these two natural hazards, two technological innovations were developed during the mid-1960's which have significantly affected both the quantity and quality of banana exports. One development was the introduction of the new Cavendish variety of banana, called the Valery, by the Standard Fruit Company. Valery is highly resistant to Panama disease and is less susceptible to wind damage than the taller Gros Michel. Valery is also a higher yielding variety by a factor of roughly two to one, thereby reducing the area required to produce the same quantity of bananas. In time, this development should lead to a reduction in production costs.

The second major technological innovation was the conversion to the shipment of bananas in boxes instead of on-stem. This development was made possible by the new plant variety. The major drawback to the Cavendish in the 1950's was its susceptibility to bruise damage in transit. In response to this problem, experimental shipments by the Standard Fruit Company were made with bananas wrapped in polyethylene bags and cardboard boxes. However, it was not until 1962 that boxed shipments were made on a large scale. The decision to begin mass plantings of the Valery variety was therefore closely associated with the feasibility of boxed shipments. The significant increases in banana exports from Honduras, Panama, and Costa Rica during 1965 and 1966 must be attributed largely to these two innovations.

Natural factors and the technologic responses to them have been primary elements influencing export availabilities and the policy decisions of major participants in the trade. And, these decisions have directly affected export performance. As an example, the serious decline in exports from the Dominican Republic in recent years is the result of a gradual scaling down of United Fruit's operations and complete withdrawal from that country in 1965. Declines in Guatemalan exports from 1957 through 1964 were caused by disease problems and the closing down of United's 7,200-acre Tiquisate Division in 1964. Ecuadorian exports dropped about 13 percent in 1965, the year in which United Fruit ceased purchases in Ecuador. These moves were made because the vastly increased productive capability of United's Central American Divisions reduced the Company's dependence upon other economically, or politically, less favorable areas. The recent growth in Costa Rican exports have been stimulated by new activities of the Standard Fruit Company in 1965-66, and Del Monte in 1968-69.

The outstanding example of governmental decision-making and its direct impact on banana exports is Taiwan. Taiwan has increased banana exports 1,380 percent or from 25,000 to 370,000 tons from 1957 to 1966. This has been made possible by the reopening of the traditional Japanese market on a more liberal basis, on the one hand, and through the tremendous stimulus given growers by the Taiwan Government on the other. However, despite position and strong government support, Taiwan producers must still reckon with seasonality, storms, and other mishaps in maintaining their volume of exports to Japan (1).

WORLD TRADE IN BANANAS

The value of world trade in bananas was \$429 million in 1964-66. At this level, banana exports were only 1 percent of world agricultural trade and about 3 percent of the value of all agricultural exports of the less developed countries.

The value of world banana exports has increased more rapidly than the volume over the period 1957-68, growing about 5 and 4 percent per year, respectively. Consequently, the export unit value has increased very little over this period, increasing only 1 percent per year. The index value of exports has trended upward rather unevenly, with the major share of the increase for this period occurring in 1964-68. On the other hand, the index of volume has trended upward rather evenly in the early part of the period but also increased more rapidly in 1964-68 (tables 4 and 5). There have been divergent trends in exports among the various exporting countries over the period with nine countries accounting for 46 percent of world exports in 1964-66, increasing their value of exports faster than their volumes. For the other countries, the volume of banana exports increased faster than did the values. 4/

Major Exporters

World exports, like production, are limited to less developed countries (97 percent in 1964-66) and primarily to Latin America (80 percent in 1964-66, table 6). The major exporting regions in Latin America are South America, Central America, and the Caribbeans. Of these regions, Central America was the largest (42.9 percent) in 1934-38, followed by the Caribbeans (21.2 percent) and South America (18.3 percent). Together these regions accounted for 82.4 percent of world banana exports in the prewar period. However, by 1964-66, the relative importance of these regions shifted. Together, these regions still accounted for about 80 percent of world banana exports but South America, primarily because of increased production and exports in Ecuador, increased from the third most important exporting regions in 1934-38 to first place in 1964-66, accounting for 38 percent of world exports in 1964-66. Central America, on the other hand, fell to second place with 28 percent of world export -- down from 43 percent in the prewar period. The volume of banana exports of the Caribbeans increased only slightly during this period and thus accounted for only 13.2 percent of world export in 1964-66 -- a decline from

4/ It is possible that, because of inferior price data in earlier years, the observations in this paragraph may be statistical aberrations rather than real changes in the value relative to volume of exports.

Table 4.--Index of value of world exports in banana, 1957-68
(1958 = 100)

Country	: 1957	: 1958	: 1959	: 1960	: 1961	: 1962	: 1963	: 1964	: 1965	: 1966	: 1967	: 1968
Brazil	122	100	40	43	35	29	27	53	58	50	51	
Colombia	169	100	90	88	91	68	86	80	120	143	161	147
Ecuador	95	100	123	123	111	121	117	121	131	144	144	129
Honduras	90	100	86	76	105	94	88	91	142	193	209	211
Panama	112	100	108	83	92	54	63	94	140	160	193	243
Costa Rica	122	100	84	94	70	80	86	106	107	110	114	175
Guatemala	111	100	78	104	89	52	88	57	22	44	60	76
Nicaragua	100	100	100	100	100	800	1,400	2,200	800	1,200	3,300	3,200
Dominican Republic	58	100	122	226	236	172	104	68	16	2	4	
Windwards and Jamaica	123	100	114	106	116	110	121	147	164	174	173	173
French Antilles	103	100	119	110	121	117	103	82	151	175	161	163
Ivory Coast	70	100	70	85	139	189	231	207	185	180	202	208
Cameroun	155	100	81	51	194	185	168	160	164	64	62	57
Somalia	78	100	111	127	154	137	173	193	184	167	117	124
Spanish Canary Islands	121	100	106	95	106	117	106	122	109	98	55	41
Other Africa	105	100	223	234	150	107	131	104	88	98	119	119
Taiwan	60	100	117	115	229	173	179	694	1,148	1,115	1,079	969
Other Asia	74	100	92	98	137	140	148	139	152	152	131	123
World total	105	100	104	104	109	104	107	119	144	157	159	164
World total (Including reexports)	105	100	105	105	110	105	107	120	146	160	161	176

Table 5.--Index of the volume of world exports of bananas, 1957-68
(1958 = 100)

Country	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
Brazil	81	100	79	91	80	76	83	80	76	63	59	
Colombia	106	100	117	110	118	84	117	99	145	196	187	230
Ecuador	5	100	127	128	119	133	162	167	145	153	152	151
Honduras	85	100	90	91	108	95	86	88	144	197	217	222
Panama	108	100	108	98	101	94	111	100	125	144	151	202
Costa Rica	103	100	71	90	76	97	87	97	105	119	123	190
Guatemala	112	100	126	171	141	79	114	96	44	66	91	123
Nicaragua	100	100	100	200	50	550	950	135	400	700	21	21
Dominican Republic	63	100	116	207	193	197	136	78	55	13	1	4
Windwards and Jamaica	109	100	118	121	125	124	137	151	183	175	170	158
French Antilles	91	100	128	124	134	139	116	73	132	154	140	156
Ivory Coast	76	100	117	159	198	267	289	274	278	276	311	320
Somalia	77	100	105	132	150	136	170	188	177	168	150	152
Spanish Canary Islands	131	100	116	108	130	154	141	153	139	122	70	57
Cameroons	103	100	78	65	87	83	75	72	74	29	30	28
Taiwan	61	100	110	112	188	141	149	490	822	902	932	832
World	96	100	106	111	114	113	121	122	134	146	147	159

(2)

Table 6.--Volume of banana exports, prewar and 1964-66

Region and country	1934-38		1964-66		Index of exports
	Volume	World share	Volume	World share	
	1,000 m.t.	Pct.	1,000 m.t.	Pct.	
<u>South America</u>					
Brazil	417	18.3	1,781	37.9	427
Colombia	214	9.4	215	4.5	100
Ecuador	162	7.1	256	5.5	158
Other	39	1.7	1,283	27.3	3,290
	2	.1	27	.6	1,350
<u>Central America and Caribbeans</u>	1,464	64.1	1,966	41.9	134
Costa Rica	96	4.2	323	6.9	336
Guatemala	168	7.4	80	1.7	48
Honduras	349	15.3	569	12.1	163
Panama	113	4.9	330	7.0	292
British Territories	366	16.0	358	7.6	98
Other	310	13.6	74	1.5	24
<u>French Antilles</u>	62	2.7	232	4.9	374
<u>West and East Africa</u>	139	6.1	416	8.8	299
Cameroon	61	2.7	94	2.0	154
Ivory Coast	47	2.1	127	2.7	270
Somalia	20	.9	99	2.1	495
Other	11	.4	96	2.0	873
<u>West Asia and North Africa</u>	5	.2	34	.7	680
<u>South and Southeast Asia</u>	1	.1	16	.3	1,600
<u>East Asia and Pacific Islands</u>	154	6.7	354	7.5	230
Malaysia	0	.0	21	.4	0
Taiwan	138	6.0	303	6.5	220
Other	16	.7	30	.6	187
<u>Other Western Europe</u>	104	4.5	102	2.2	98
Spanish Canary Islands	104	4.5	102	2.2	98
<u>Less developed</u>	2,180	95.7	4,567	97.2	314
<u>Developed 1/</u>	104	4.3	102	2.2	98
<u>Central plan</u>	0	.0	30	.6	0
<u>World 1/</u>	2,284	100.0	4,697	100.0	206

1/ Does not include reexports of the United States and the EC.

21.2 percent in 1934-38. However, since 1964 Central America and the Caribbean have regained much of their prewar share of world exports, as shown in figure 1, primarily because of large-scale plantings of the disease-resistant and higher-yielding varieties to overcome the effects of the Panama disease.

The major shifts in the relative importance of these regions in world trade over the past 30 years resulted from a rapid increase in banana production and exports in countries like Ecuador (from 39,000 tons in the prewar year to 1,283,000 tons in 1964-66 or 3,190 percent), Costa Rica (from 96,000 to 323,000 tons, or 236 percent during this period) and the French Antilles (from 62,000 to 232,000 tons, or 274 percent from 1934-38 to 1964-66). These changes are in comparison to the major decline in banana exports of Mexico and other Central American and Caribbean countries during this period.

An analytical description of the major trade flows between the major exporting and major importing regions is shown in table 7 for 1964-66. In this table, the exporting regions are shown in the left hand stub while the importing regions are shown as column headings at the top of the table. The data in this table emphasizes the fact that world banana exports are primarily from the less developed to the developed countries (about 91 percent), as indicated by the concentration of numbers in the lower left quadrant.

Trends in Export Earnings

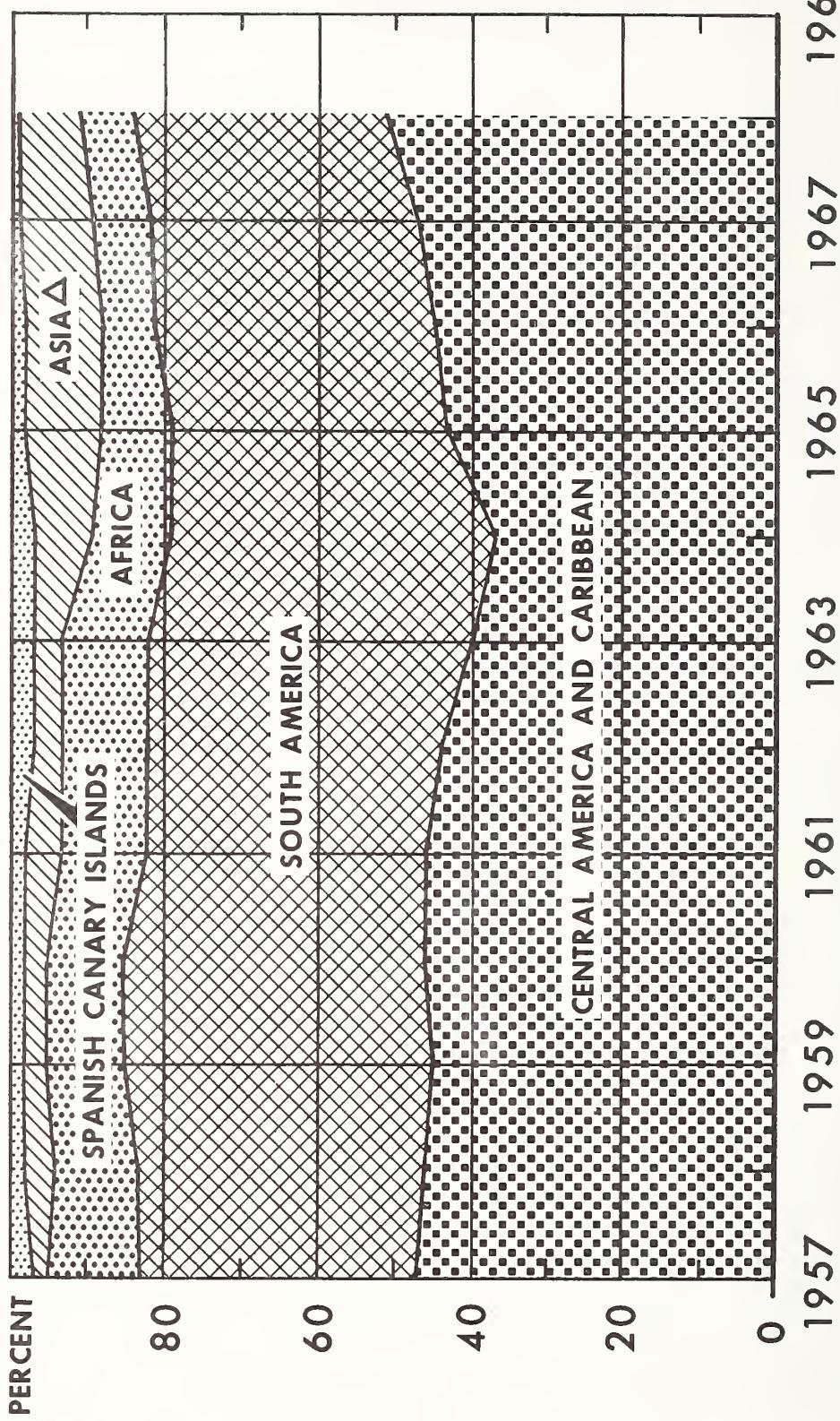
While the value of world trade in bananas has increased about 5 percent per year from 1957-66, there have been divergent trends in export earnings of the various exporting countries (table 8).

For example, export earnings have increased from 1957-66 in only 10 of the 18 countries listed in table 8. These were: Ecuador, Honduras, Panama, Costa Rica, Nicaragua, Jamaica and Windward Islands, French Antilles, Ivory Coast, Somalia, and Taiwan. These countries, however, accounted for 83 percent of world exports in 1964-66. Export earnings in all the other countries declined or remained rather constant. Generally, the gains in export earnings in these 10 countries have been on a larger volume rather than on higher unit values, as shown in table 9. The one clear exception appears to be Taiwan where both volume and unit price have risen over the 1957-66 level, with unit value of exports rising more evenly than for the other major exporters.

World Trade Patterns

Commercial trading arrangements have tended to become institutionalized and to develop into rather rigid historical patterns of trade. The trading links between importers and exporters is generally through one or more private or Government agencies or both. That is, the exporting firm in the exporting country may be the same importing firm in the importing countries. Through commercial arrangements such as these, the trade flows of bananas tend to become fixed and regulated. The extent of regulation is often extended directly or indirectly to the control of supplies and prices. The major firms or agencies affecting production and trade patterns in the major exporting countries are shown in table 3.

MAJOR BANANA EXPORTERS



Δ INCLUDES COMMUNIST ASIA.

Table 7.—World trade in bananas, 1964-66
(thousand metric tons*)

Importing regions	Exporting regions	Developed		Central plan		Less developed	
		United States	Canada	EC	Other Western Europe	Japan	Communist Asia
United States	United States	48	9	47	14	3	17
Canada	United Kingdom				34	9	44
EC	Other Western Europe					87	5
United Kingdom	Japan						9
Other Western Europe	Australia and New Zealand						
Japan	Australia and New Zealand						
Australia and New Zealand	Zealand						
Zealand	South Africa						
South Africa	Total developed	48	9	47		104	5
Total developed	Eastern Europe						
Eastern Europe	USSR						
USSR	Communist Asia						
Communist Asia	Total central plan						
Total central plan	Central America and Mexico						
Central America and Mexico	South America						
South America	East and West Africa						
East and West Africa	North Africa and West Asia						
North Africa and West Asia	South Asia						
South Asia	Southeast Asia Islands						
Southeast Asia Islands	East Asia and Pacific Islands						
East Asia and Pacific Islands	Total less developed						
Total less developed	World total imports	1,630	167	1,353	360	226	373
World total imports	World total exports	1,630	167	1,401	369	273	376
World total exports	World total exports	1,630	167	1,401	369	273	376

*The absence of data indicates little trade flows or trade flows of less than 500 metric tons.

Table 8.--Value of banana exports, 1957-68

Country	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	-- Million dollars --			
													1	2	3	4
Spanish Canary Islands	11.6	9.6	10.2	9.1	10.2	11.2	10.2	11.7	10.5	9.4	5.3	3.9				
South America	108.8	99.6	108.2	107.6	99.3	103.2	102.3	107.3	122.7	135.9	137.7	127.2				
Brazil	13.3	10.9	4.4	4.6	3.8	3.2	2.9	5.8	6.3	6.3	5.5	5.6				
Colombia	26.2	15.5	13.9	13.7	14.1	10.6	13.3	12.4	18.6	22.2	25.0	22.8				
Ecuador	69.0	72.9	89.7	89.8	80.9	88.5	85.2	88.1	95.9	105.3	104.7	93.9				
Other .....	.3	.3	.3	.5	.5	.5	.9	.9	.9	1.9	2.1	2.5	9.9			
Central America	108.8	104.9	95.3	98.0	102.5	88.6	92.1	101.2	120.3	144.8	162.5	192.9				
Honduras	33.8	37.7	32.3	28.8	39.5	35.4	33.3	34.3	53.7	72.6	78.8	79.6				
Panama	24.4	21.8	23.5	18.2	20.0	11.8	13.7	20.5	30.6	34.8	42.0	53.0				
Costa Rica	32.3	26.5	22.3	25.0	18.5	21.2	22.7	28.1	28.3	29.2	30.1	46.4				
Guatemala	14.5	13.1	10.2	13.6	11.6	5.8	11.5	7.5	2.9	5.8	7.9	10.0				
Nicaragua .....	.1	.1	.1	.1	.1	.8	1.4	2.2	.8	1.2	3.3	3.2				
Dominican Republic	2.9	5.0	6.1	11.3	11.8	8.6	5.2	3.4	.8	.1	.2	.5				
Other .....	.9	.7	1.2	1.0	1.0	.8	.9	.8	.6	.4	.3	.5				
Windwards and Jamaica	23.4	19.1	21.7	20.3	22.1	21.1	23.1	28.0	31.3	33.2	33.1	33.1				
French Antilles	24.1	23.3	27.7	25.6	28.3	27.2	24.1	19.2	35.2	40.8	37.5	37.9				
Africa	24.8	25.5	32.4	33.9	40.4	38.7	45.1	43.0	40.1	34.5	32.9	33.7				
Ivory Coast	4.3	6.1	4.3	5.2	8.5	11.5	14.1	12.6	11.3	11.0	12.3	12.7				
Cameroon	7.3	4.7	3.8	2.4	9.1	8.7	7.9	7.5	7.7	3.0	2.9	2.7				
Somalia	6.4	8.2	9.1	10.4	12.6	11.2	14.2	15.8	15.1	13.7	9.6	10.2				
Other	6.8	6.5	15.2	15.9	10.2	7.3	8.9	7.1	6.0	6.7	8.1	8.1				
Asia	7.5	11.0	11.3	11.6	19.5	17.0	17.8	41.9	64.5	62.9	59.9	54.1				
Taiwan	2.9	4.8	5.6	5.5	11.0	8.3	8.6	33.3	55.1	53.5	51.8	46.5				
Other	4.6	6.2	5.7	6.1	8.5	8.7	9.2	8.6	9.4	9.4	8.1	7.6				
Central plan	1.5	3.2	1.7	1.9	1.5	1.8	1.6	2.6	3.1	3.9	3.1	2.2				
Mainland China	1.5	3.1	1.5	1.6	1.0	1.2	.9	1.7	2.1	3.4	2.8	2.1				
North Vietnam .....	.0	.1	.2	.3	.5	.6	.7	.9	1.0	.5	.3	.4				
World total	310.5	296.1	308.9	308.0	323.8	308.8	316.3	352.3	427.7	465.4	472.0	485.0				
(Including reexports)	316.0	302.1	315.9	316.0	331.9	317.2	324.9	362.8	442.1	481.9	488.1	501.3				

Table 9.--Unit value for banana exports, 1957-68

Country	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
-- Dollars per ton --												
-- Dollars per ton --												
South America:												
Brazil	60.7	40.2	20.7	19.0	15.4	14.1	25.7	29.2	30.7	32.2	35.0	
Colombia	141.6	89.1	68.5	71.7	68.4	72.1	65.5	72.1	73.5	64.9	76.7	56.9
Ecuador	86.9	87.9	85.3	84.3	82.1	80.5	63.6	63.7	79.9	83.2	83.0	75.0
Central America:												
Honduras	99.7	94.7	89.7	79.3	91.9	93.6	96.8	98.3	93.9	92.4	91.1	89.9
Panama	83.8	81.3	80.7	69.2	73.5	47.0	46.0	76.8	91.1	90.1	103.7	98.0
Costa Rica	104.2	87.7	104.7	91.6	80.1	72.3	86.6	95.6	89.6	81.3	81.1	80.7
Guatemala	111.5	112.9	69.9	68.7	70.7	73.9	87.1	67.6	56.9	75.3	74.5	69.9
Dominican Republic	52.7	56.8	59.8	62.1	69.4	68.2	71.7	75.4	70.8	72.7	73.0	50.0
Windwards and Jamaica	101.3	90.5	86.8	79.6	84.0	80.5	79.6	87.8	81.1	89.7	92.4	99.4
French Antilles	136.9	120.1	111.7	106.2	108.8	101.1	106.6	136.2	137.5	136.4	138.4	125.1
Africa:												
Ivory Coast	122.8	132.6	79.6	71.2	93.4	93.5	106.0	100.0	88.3	86.6	86.0	86.4
Cameroon	86.9	65.3	66.6	66.7	65.0	66.4	65.3	64.6	64.7	63.8	60.4	60.0
Somalia	148.8	146.4	154.2	140.5	150.0	147.4	149.5	150.5	152.5	145.7	114.3	120.0
Canary Islands	119.5	129.7	118.6	113.7	106.3	98.2	97.1	103.5	101.9	104.4	101.9	92.9
Asia:												
Taiwan	116.0	117.1	124.4	119.6	142.8	143.1	141.0	165.7	163.5	144.6	135.6	136.4
World total	92.1	84.4	83.3	78.9	81.1	78.2	74.8	82.4	91.2	90.8	91.5	87.1

The trading links provided by these organizations tend to influence the direction and flow of trade in bananas to particular countries. With this organizational structure, it is not surprising to see that for 1966, in 17 of 21 countries shown in table 10, more than 50 percent of all banana exports of each country were shipped to a single market. Of these 17 exporters, 12 countries were dependent upon one market for 80 percent or more of their total banana exports. Thus, major developments in a prime market affecting consumption and trade, will have a tremendous impact on the export prospects of a country where dependency on the market is high.

Major Importers

The opposite side of the world trade equation is the degree of dependency of an importing country upon particular exporting countries. For example, five major importing countries in 1966 were dependent upon a single producing and exporting country for 80 percent or more of their imports. If at least three sources of supplies are considered, there were 19 importing countries dependent upon one to three countries for 80 percent of their imports (table 11).

In view of these trading links and resulting trading patterns, it is necessary that a closer look be taken at individual major markets to illustrate how commercial and governmental arrangements affect trade flows and market shares.

United States and Canada

The United States is the oldest and largest market for bananas and is highly dependent upon Central American countries for its supplies (over 70 percent since 1966). Since the mid-1950's, competition for this market has been between the several Central American countries and Ecuador. There have been divergent trends in the shares of the United States market held by the different countries from 1962-69. For example, the Ecuadorian share of the market has steadily declined to 19 percent, after reaching its peak of 48 percent in 1963. Guatemala's and the Dominican Republic's shares have tended to remain small and rather constant. On the other hand, the other major exporters -- Honduras, Panama, and Costa Rica -- have increased their market share since 1962 (table 12). The major reason for Ecuador's decline in the share of the U.S. market since 1963 has been the resurgence of available supplies from the Central American countries, because of their increased plantings of high yielding Cavendish variety and closeness to the U.S. market.

For Canada, the import picture was similar to that of the United States during the period 1962-69. Total imports were stable in 1962 and 1963 but have increased by 5-6 percent annually since that time. As in the U.S. market, the Ecuadorian share of the market tended to decrease while the Central American share increased, especially in 1965 and 1966. Honduras, Costa Rica, and Panama have registered the largest gains in both the Canadian and U.S. market (tables 12 and 13).

The similarity of patterns is to be expected since Canada and the United States obtain bananas from the same countries and through the same channels of distribution. A substantial portion of bananas imported into Canada are trans-shipped by truck or rail from U.S. ports.

Table 10.--Degree of dependence of exporting countries on main markets, 1966

Country of export	Percentage of total exports going to:				Major markets in order of importance
	1st market	2nd market	3rd market	First 3 markets	
Brazil	87	13	---	100	Argentina, Uruguay
Colombia	46	19	10	75	Germany, Netherlands, Bel.-Lux.
Ecuador	43	27	7	77	United States, Germany, Italy
Surinam	54	31	3	88	Italy, France, Netherlands
Honduras	68	10	9	87	United States, Germany, Canada
Panama	86	9	1	96	United States, Canada, Sweden
Costa Rica	87	9	2	98	United States, Germany, Canada
Guatemala	38	19	18	75	Germany, United States, Italy
Dominican Republic	67	33	---	100	United States, Germany
Nicaragua	94	6	---	100	United States, Canada
<u>British West Indies</u>	<u>98</u>	<u>2</u>	<u>---</u>	<u>100</u>	<u>United Kingdom, Ireland</u>
Jamaica	100	---	---	100	United Kingdom
Windwards	96	4	---	100	Ireland
<u>French Antilles</u>	<u>89</u>	<u>10</u>	<u>1</u>	<u>100</u>	<u>France, Italy, United States</u>
Guadeloupe	100	---	---	100	France
Martinique	84	14	2	100	France, Italy, United States
Ivory Coast	65	23	7	95	France, Italy, Algeria
East Cameroon	87	13	---	100	France, Italy
West Cameroon	86	14	---	100	United Kingdom, Ireland
Somalia	96	3	1	100	Italy, Kuwait, other
Spanish Canary Islands	17	13	13	43	Denmark, Germany, Finland
Madagascar	68	30	2	100	France, Italy, other
Taiwan	98	1	1	100	Japan, Ryukyu Islands, other

Source: (25)

Table 11.--Degree of dependence of importing countries on main suppliers, 1966

Country of import	Percentage of total imports originating from:				Major suppliers in order of importance
	1st supplier	2nd supplier	3rd supplier	First 3 suppliers	
United States	30	29	21	80	Honduras, Ecuador, Panama
Canada	37	23	22	82	Honduras, Ecuador, Panama
Belgium-Luxembourg	56	34	6	96	Ecuador, Colombia, Honduras
France	57	18	12	87	Fr. Antilles, Ivory Coast, E. Cameroon
Germany	52	25	13	90	Ecuador, Colombia, Honduras
Italy	27	24	8	49	Somalia, Ecuador, Colombia
Netherlands	63	22	6	91	Colombia, Bel.-Lux., Germany
United Kingdom	96	2	1	99	Br. W. Indies, W. Cameroon, Canary Islands
Austria	53	32	11	96	Ecuador, Honduras, Guatemala
Denmark	44	38	10	92	Ecuador, Canary Islands, Honduras
Norway	51	17	17	85	Colombia, Ecuador, Honduras
Sweden	53	21	12	86	Colombia, Ecuador, Honduras
Switzerland	45	23	15	83	Honduras, Ecuador, Guatemala
Finland	69	31	--	100	Canary Islands, Latin America*
Greece	80	20	--	100	Israel, Canary Islands
Iceland	70	30	--	100	Ecuador, Canary Islands
Ireland	50	39	6	95	Br. W. Indies, Canary Islands, Cameroon
Japan	81	17	1	99	Taiwan, Ecuador, Mainland China
Argentina	100	--	--	100	Brazil
Chile	100	--	--	100	Ecuador

Table 12.--Market share of U.S. banana imports, 1962-69

Country	1962	1963	1964	1965	1966	1967	1968	1969
-- 1,000 metric tons --								
Total:	1,575	1,586	1,576	1,606	1,711	1,725	1,777	1,713
South America:								
Ecuador	700	758	713	583	502	471	375	323
Other	700	758	713	583	502	453	355	297
	0	6	0	0	0	0	20	26
-- Percent --								
Central America:								
Honduras	875	828	863	1,023	1,209	1,254	1,402	1,389
Panama	328	286	246	410	506	429	414	429
Costa Rica	201	235	248	314	366	428	439	359
Guatemala	244	207	240	248	267	294	426	489
Nicaragua	46	44	24	9	14	49	73	76
Dominican Republic	8	15	22	9	16	34	34	28
Other	20	21	1	1	4	1	4	1
	28	20	82	32	36	19	12	7
South America:								
Ecuador	44	48	45	36	29	27	21	19
Other	41	48	45	36	29	26	20	17
Central America:								
Honduras	56	52	55	64	71	73	79	81
Panama	21	18	16	26	30	23	23	25
Costa Rica	13	15	16	20	21	25	25	21
Guatemala	15	13	15	15	16	17	24	29
Nicaragua	3	3	2	1	1	3	4	4
Dominican Republic	1	1	2	1	1	2	2	2
Other	2	1	1	0	0	0	0	0

Source: (27, 41)

Table 13.-Market share of Canadian banana imports, 1962-69

Country	1962	1963	1964	1965	1966	1967	1968	1969
-- 1,000 metric tons --								
Total:	153	153	157	167	175	182	194	192
<u>South America</u> (Ecuador)	50	46	48	42	41	42	42	38
<u>Central America</u>	103	107	109	125	134	140	152	154
Honduras	41	37	40	55	65	62	57	62
Panama	36	35	32	43	39	39	46	42
Costa Rica	25	27	33	26	27	31	43	40
Guatemala	0	2	3	0	0	0	1	3
Other	1	6	1	1	3	8	5	7
-- Percent --								
<u>South America</u> (Ecuador)	33	30	31	25	23	23	22	20
<u>Central America</u>	67	70	70	75	77	77	78	80
Honduras	27	24	25	33	37	34	29	32
Panama	24	23	20	26	22	22	24	22
Costa Rica	16	18	22	16	15	17	22	21
Guatemala	0	1	2	0	0	0	0	2
Other	1	4	1	1	2	4	3	3

Source: (27, 41)

The trade links observed between North American and Central American suppliers are the direct result of the development of commercial banana trade. Commercial exports of bananas were first developed in Central America by pioneer American investors, during the late 1800's. To this date, most of the banana imports from Panama, Honduras, Costa Rica, and Guatemala are handled by the United Fruit Company and by the Standard Fruit and Steamship Company. About 80 percent of U.S. imports of bananas are handled by these two firms. Almost 40 percent of banana exports are handled by U.S. firms in Ecuador.

The trade patterns between the Central and South American countries and the United States and Canada are characterized by rather rigid commercial arrangements. There are no quotas or duties on the fruit except in Canada where a small duty on bananas from non-Commonwealth countries is levied. Suppliers from non-Latin American countries are not excluded by governmental policies. It appears, therefore, that the market shares held by various exporting countries are determined by competitive economic factors, including the relative costs associated with transportation.

The EC

The EC is by far the largest market group in Western Europe, accounting for about 70 percent of total banana imports by volume in 1966. Between 1957 and 1966, the volume of banana imports more than doubled. The average annual growth rate was 7.6 percent. While growth was rather sluggish between 1960 and 1964, huge increases in 1965 and 1966 have maintained the overall rate.

The major sources of EC banana imports from 1962 to 1969 are shown in table 14. It should be noted that a few imports are reported as originating within the EC itself. These are actually transshipments of bananas originating from Latin America or Africa.

During 1962-69, Ecuador, Honduras, and Panama increased their shares of the EC market. Of these countries, Honduras showed the largest increase -- about 20 times its 1962 shipments. Panama and Costa Rica experienced increases in their small shipments -- especially in 1969 while the Dominican Republic and Guatemala experienced declining shares of the market. Within the EC there exists a number of rather different arrangements between major importing countries and their sources of banana supply. Some of these arrangements are the result of commercial and investment interests established during the early part of the twentieth century between European importers and African and Caribbean growers, former European territories and colonies that are now independent. Other arrangements have resulted from the fact that some European nations did not have former colonies or at least no banana-producing ones. These trading relations are sufficiently diverse to warrant discussion in some detail in each country. Furthermore, although trading patterns have been established for some time, the formation of a common market with common policies toward international trade has brought about some rather special developments that affect banana imports.

Belgium-Luxembourg and the Netherlands. Despite the fact that Latin American bananas faced a tariff of 16.5 percent (20 percent as of 1969) as against no duty for fruit from Congo (Kinshasa), the Latin Americans have

Table 14.--Market share of the EC banana market, 1962-69

Country	1962	1963	1964	1965	1966	1967	1968	1969
-- 1,000 metric tons --								
Total:								
EC:	11	8	6	15	27	4	6	
<u>Other Western Europe</u> (Spanish Canary Islands)	38	33	35	35	28	18	15	
<u>South America</u>	398	459	530	660	761	735	559	451
Ecuador	243	256	354	407	472	497	359	301
Colombia	151	198	175	243	278	219	166	122
Surinam	4	5	1	10	11	19	34	22
<u>Central America</u>	163	122	95	110	169	280	376	491
Honduras	13	13	12	39	108	237	270	241
Costa Rica	0	0	0	13	10	3	12	7
Panama	5	0	0	12	8	7	41	12
Dominican Republic	92	54	30	28	2	0	0	
Guatemala	53	55	53	18	41	33	53	51
<u>French Antilles</u>	254	201	135	239	291	265	279	271
<u>British Territory</u>	1	0	0	16	4	10	7	
<u>Africa</u>	260	299	253	374	292	270	253	241
Ivory Coast	111	129	85	112	103	120	114	111
East Cameroon	52	54	80	112	62	49	44	41
Somalia	76	89	63	122	88	74	80	76
Other 1/	21	27	25	28	39	27	15	11
<u>West Asia</u>	6	8	6	4	6	2	0	1
Israel								
-- Percent --								
EC:	1	1	1	1	2	0	0	
<u>Other Western Europe</u> (Spanish Canary Islands)	3	3	3	2	2	1	1	1
<u>South America</u>	35	41	50	46	48	46	37	30
Ecuador	21	23	33	28	30	31	24	20
Colombia	13	18	17	17	18	14	11	8
Surinam	0	0	0	1	1	1	2	2
<u>Central America</u>	14	11	9	8	11	18	25	33
Honduras	1	1	1	3	7	15	18	17
Costa Rica	0	0	0	1	1	0	1	5
Panama	0	0	0	1	0	1	3	8
Dominican Republic	8	5	3	2	0	0	0	0
Guatemala	5	5	5	1	3	2	3	3
<u>French Antilles</u>	22	18	13	16	18	17	19	18
<u>British Territories</u>	0	0	0	1	0	1	1	0
<u>Africa</u>	24	26	24	24	19	17	17	17
Ivory Coast	10	11	8	8	6	7	8	8
East Cameroon	5	5	8	8	4	3	3	3
Somalia	7	8	6	8	6	5	5	5
Other 1/	2	2	2	2	3	2	1	1
<u>West Asia</u>	1	1	1	0	0	0	0	0
Israel								

1/ Other include Congo (Kinshasa), Ethiopia, and Madagascar.

Source: (27, 41)

increased their share of the Belgium-Luxembourg and Netherlands markets from about 84 to 98 percent between 1962 and 1969 (tables 15 and 16). Ecuador and Colombia each increased their shares of the market, while Honduras, Panama, and Costa Rica introduced small shipments in 1965, 1966, 1967, 1968, and 1969. These gains have been at the expense of the Congo, the Dominican Republic, and Guatemala, who together had supplied over 40 percent of the market in 1962.

There are four major importers of bananas in Belgium. Two of these have purchase agreements with the Dutch firm Internationale Bananen Maatschappij (IBM). This firm is a branch of Elders and Fyffes of London, the British subsidiary of United Fruit Company. IBM is the largest importer in the Netherlands. All other importers are part of an independent group which buys bananas from multiple sources. A recent study estimated that United Fruit supplied directly or indirectly some 71 percent of all banana imports of the Benelux countries in 1960 (6).

Italy. The volume of banana imports into Italy increased by more than 300 percent from 1964 to 1965 primarily because of the dissolution of the highly restrictive Italian Banana Monopoly (table 17). Under this monopoly, the Government exercised absolute control over the purchase, shipment, distribution, and prices of bananas. Currently, the two major import groups are the Comfrique and the Compagnia Italiana della Frutta (a United Fruit subsidiary). Import quotas remain, but are more liberal than previously. Under this system, Somalia, the traditional supplier, receives a fixed percentage of the quota. Duties on non-associated third-country fruit have been reduced from 36 to 20 percent. Imports from associated members of the EC as well as from Somalia enter duty free. To maintain Government receipts formerly under the aegis of the monopoly, a consumer tax of 14.4 cents per kilogram was imposed on all imports except those from Somalia which are taxed at a rate of 9.6 cents.

Despite the disadvantaged position of Latin America, imports in 1965 from that area rose over 20 fold. Their market share increased from 11 percent in 1962 to 72 percent in 1969. Although shipments from the Ivory Coast and Somalia have increased between 1962 and 1969, their share of market has declined. Somalia's share decreased from 56 to 24 percent over the period. Despite the very favorable treatment offered Somalia, recent shipments have been severely restricted as a result of the closing of the Suez Canal. The high consumer taxes and the remaining import restrictions are a hindrance to further rapid growth in per capita consumption, which still remains the lowest in the EC.

West Germany. Latin American countries have supplied more than 96 percent of West Germany's bananas since 1963 (table 18). Limited quantities have come from the Spanish Canary Islands and the Ivory Coast. The largest supplier of bananas to the German market is Ecuador, which held over 50 percent of the market in 1964-66. Over the period 1962-67, Ecuador and Honduras increased their shares of this growing market, while the market shares of the Canary Islands and the Dominican Republic have declined. However, since 1967 Ecuador's share has declined while those of Honduras, Panama, and Costa Rica have increased.

There are about 25 independent banana importers in West Germany. These may be classified into four groups.

Table 15.—Market share of Belgium-Luxembourg's banana imports, 1962-69

Country	1962	1963	1964	1965	1966	1967	1968	1969	-- 1,000 metric tons --	
									Total:	
South America:										
Ecuador	37	48	56	69	88	88	67	60		
Colombia	30	27	32	41	55	52	29	21		
	7	21	24	28	33	36	38	39		
Central America:										
Honduras	20	6	5	7	6	4	10	14		
Costa Rica	0	0	0	1	2	3	6	9		
Panama	0	0	0	0	3	1	1	3		
Dominican Republic	1	0	0	0	1	0	3	2		
Guatemala	10	4	2	2	0	0	0	0		
Africa (Congo, Kinshasa):										
	9	8	4	3	2	1	0	0		
South America:										
Ecuador	54	74	82	86	90	95	87	81		
Colombia	44	42	47	51	56	56	38	28		
	10	32	35	35	34	39	49	53		
Central America:										
Honduras	29	9	7	9	6	4	13	19		
Costa Rica	0	0	0	1	2	2	8	12		
Panama	0	0	0	4	3	1	1	4		
Dominican Republic	1	0	0	0	1	0	4	3		
Guatemala	15	6	3	3	0	0	0	0		
Africa (Congo, Kinshasa):										
	13	12	6	4	2	1	0	0		

Table 16.--Market share of Netherlands' banana imports, 1962-69

Country	1962	1963	1964	1965	1966	1967	1968	1969
-- 1,000 metric tons --								
Total:								
EC:	71	72	69	81	100	100	98	88
Belgium-Luxembourg	11	8	6	15	27	4	6	0
West Germany	10	7	4	10	22	0	0	0
South America:	1	1	2	5	5	4	6	0
Colombia	26	49	52	60	68	96	87	72
Ecuador	12	35	37	50	63	63	60	51
Surinam	13	12	14	9	5	32	27	21
Central America:	1	2	1	1	0	1	0	0
Dominican Republic	34	13	9	6	2	0	5	16
Guatemala	17	11	7	6	0	0	0	0
Panama	10	2	2	0	0	0	0	0
Honduras	2	0	0	0	2	0	2	2
Costa Rica	5	0	0	0	0	0	0	12
Africa (Cameroon):	0	0	0	0	0	0	3	2
-- Percent --								
EC:	15	11	9	19	28	4	6	0
Belgium-Luxembourg	14	10	6	12	22	0	0	0
West Germany	1	1	3	7	6	4	6	0
South America:	37	68	75	74	68	96	89	82
Colombia	17	49	54	62	63	63	61	58
Ecuador	18	17	20	11	5	32	28	24
Surinam	0	3	1	1	0	1	0	0
Central America:	48	18	13	7	2	0	5	18
Dominican Republic	24	15	10	7	0	0	0	0
Guatemala	14	3	3	0	0	0	0	0
Panama	3	0	0	0	2	0	2	2
Honduras	7	0	0	0	0	0	0	14
Costa Rica	0	0	0	0	0	0	3	2
Africa (Cameroon):	0	0	0	0	1	0	0	0

Source: (27, 41)

Table 17.--Market share of Italy's banana imports, 1962-69

Country	1962	1963	1964	1965	1966	1967	1968	1969
-- 1,000 metric tons --								
Total:	135	161	96	315	322	319	325	324
South America:	3	3	4	39	112	129	96	84
Ecuador	0	0	4	23	78	111	75	61
Colombia	0	0	0	9	27	10	4	4
Surinam	3	3	0	7	7	8	17	19
Central America:	0	0	0	10	38	58	90	140
Honduras	0	0	0	8	24	52	50	74
Guatemala	0	0	0	0	13	3	6	11
Panama	0	0	0	0	1	1	30	10
Costa Rica	0	0	0	2	0	0	4	45
British Territories:	1	0	0	16	4	10	7	0
French Antilles:	11	4	0	21	28	16	22	9
Africa:	97	133	81	209	125	104	110	90
Ivory Coast	18	40	12	37	21	25	29	12
Cameroon, East	0	0	8	46	8	3	0	0
Nigeria	0	0	0	0	1	0	0	0
Uganda	0	1	3	0	0	0	0	0
Ethiopia	3	3	0	0	0	0	0	0
Somalia	76	89	58	121	86	74	81	78
Madagascar	0	0	0	5	9	2	0	0
Other Western Europe (Spain):	14	13	5	10	5	0	0	0
West Asia:	6	8	6	4	6	2	0	1
Israel	6	8	6	4	6	2	0	1
-- Percent --								
South America:	2	2	4	12	35	40	29	26
Ecuador	0	0	4	7	24	35	23	19
Colombia	0	0	0	3	8	3	1	1
Surinam	2	2	0	2	2	3	5	6
Central America:	0	0	0	3	12	18	28	43
Honduras	0	0	0	3	7	16	16	23
Guatemala	0	0	0	0	4	1	2	3
Panama	0	0	0	0	0	1	9	3
Costa Rica	0	0	0	0	0	0	1	14
British Territories:	1	0	0	2	1	3	2	0
French Antilles:	8	2	0	7	9	5	7	3
Africa:	72	81	85	67	38	33	34	28
Ivory Coast	13	25	12	12	7	8	9	4
Cameroon, East	0	0	8	15	2	1	0	0
Nigeria	0	0	0	0	0	0	0	0
Uganda	0	0	3	0	0	0	0	0
Ethiopia	2	2	0	0	0	0	0	0
Somalia	56	55	59	38	27	23	25	24
Madagascar	0	0	0	2	3	1	0	0
West Asia:	4	5	6	1	2	1	0	0
Israel	4	5	6	1	2	1	0	0

Source: (41)

Table 18.--Market share of West Germany's banana imports, 1962-69

Country	1962	1963	1964	1965	1966	1967	1968	1969
-- 1,000 metric tons --								
Total:	467	474	487	585	606	626	566	549
South America:	332	355	392	483	471	398	287	222
Ecuador	200	214	284	328	318	293	222	192
Colombia	132	141	108	155	153	105	65	30
Central America:	109	100	81	87	121	219	270	323
Honduras	8	10	12	30	80	182	212	149
Guatemala	33	51	48	17	28	30	47	42
Panama	3	0	0	12	4	4	7	109
Costa Rica	0	0	0	8	7	2	4	23
Dominican Republic	65	39	21	20	2	1	0	0
French Antilles:	0	0	0	2	1	0	2	0
Africa:	5	5	0	0	0	0	2	0
Ivory Coast	4	4	0	0	0	0	2	0
Congo (Kinshasa)	1	1	0	0	0	0	0	0
Other Western Europe (Spain)	19	14	13	12	12	8	5	4
--Percent--								
South America:	71	75	80	83	78	64	51	40
Ecuador	43	45	58	56	52	47	39	35
Colombia	28	30	22	26	25	17	12	5
Central America:	23	21	17	15	20	35	48	59
Honduras	2	2	2	5	13	29	38	27
Guatemala	7	11	10	3	5	5	8	8
Panama	1	0	0	2	1	1	1	20
Costa Rica	0	0	0	1	1	0	1	4
Dominican Republic	14	8	4	3	0	0	0	0
French Antilles:	0	0	0	0	0	0	0	0
Africa:	1	1	0	0	0	0	0	0
Ivory Coast	1	1	0	0	0	0	0	0
Congo (Kinshasa)	0	0	0	0	0	0	0	0
Other Western Europe (Spain)	4	3	3	2	2	1	1	1

Source: (27, 41)

The first group is represented by Union Handels and Schiffahrts-gesellschaft GmbH of Bremen. Union is the largest importer, accounting for about 33 percent of German imports. It is tied to the United Fruit Company and purchases bananas from Colombia, Honduras, Guatemala, and the Dominican Republic. The second group is composed of 13 importers of which the Afrikanische Frucht Compagnie (AFC) is the oldest. They accounted for approximately 25 percent of the market. The third group includes two independent importers who obtain supplies from Colombia and together accounted for about 15 percent of the market in the mid-1960's. The last group is made up of Dutch and Belgian importers who purchase mainly in Ecuador.

Imports enter Germany duty free under arrangements of the Banana Protocol. Although the duty-free quota is essentially based on a percentage of 1956 volume, the provisions for negotiating increases in the quota have been actively employed. Each year, and generally several times a year, German authorities seek EC permission to have the amount of the quota increased. The provision allows for increases of up to 50 percent of the difference between the previous year's quantities and 1956 quantities. In actuality, the size of the quotas has been increased in each of the recent years to levels covering virtually all bananas imported. This has been particularly significant and favorable for Latin American suppliers who are now virtually the sole suppliers of the German market. However, the continuance of this practice depends upon the success of the German authorities in winning concessions from the EC authorities -- in the face of opposition from the French. Furthermore, there have been substantial efforts on the part of both French and African associated members of the EC to severely modify and conceivably nullify this Protocol. Thus, present and future access to the German market appears to hinge on the ability of the German trade authorities to maintain the viability of the Protocol. From the Latin American point of view, this arrangement is a tenuous one at best.

The Protocol includes a pledge by German authorities to support any attempts by German importers to increase purchases from the African Associated members. It is interesting to note, however, that in recent years this trade has dwindled to virtually nil, reflecting the apparent fact that African attempts to become competitive in price and quality with Latin American fruit have met with relatively little success. It is possible that Latin American exporters may continue to be competitive even with the EC 20-percent duty.

France. The French Territories of Martinique and Guadeloupe supply over 55 percent of the French market (table 19). The remainder comes from the associated countries, chiefly the Ivory Coast and Cameroon. Latin American producers other than the French Territories are virtually excluded by a system of restrictive quotas and import license controls. Furthermore, while bananas from the Franc zone enter duty free, any shipments allowed from nonassociated countries pay an import duty of 20 percent ad valorem. The import price of bananas is the highest in the EC.

In 1962-69, the only significant increase in banana imports occurred in 1966. Trade patterns remained rather stable, with the exception of 1964 when the market share of the Antilles declined because of heavy windstorm damage to crops. Consequently, 1964 was also the only year in which significant purchases were made in other Latin American countries. Generally, third country suppliers are effectively excluded from the French market.

Table 19.--Market share of France's banana imports, 1962-69

Country	1962	1963	1964	1965	1966	1967	1968	1969
-- 1,000 metric tons --								
Total:								
South America:	398	362	353	399	460	444	431	449
Ecuador	0	4	26	9	22	24	23	16
Colombia	0	1	6	1	2	5	0	1
Surinam	0	0	0	2	4	10	17	9
Central America:	0	3	0	0	3	0	3	0
Honduras	0	3	0	0	2	0	2	0
French Antilles:	243	197	135	216	262	249	255	263
Africa:	149	153	165	162	163	161	142	157
East Cameroon	52	54	72	66	53	46	44	47
Ivory Coast	89	85	73	75	82	95	83	97
Congo, (Kinshasa)	5	4	4	2	4	3	1	1
Guinea	0	0	1	3	0	0	0	0
Madagascar	3	10	13	15	22	17	14	12
Somalia	0	0	5	1	2	0	0	0
Other Western Europe (Spain):	5	6	17	13	11	10	8	13
-- Percent --								
South America:	0	1	7	2	5	5	5	3
Ecuador	0	1	6	2	3	2	1	1
Colombia	0	0	2	0	0	1	0	0
Surinam	0	0	0	0	1	2	4	2
Central America:	0	0	0	0	0	0	1	0
Honduras	0	0	1	0	0	0	1	0
French Antilles:	61	54	38	54	57	56	59	59
Africa:	37	40	51	40	38	36	33	35
East Cameroon	13	15	20	17	12	10	10	10
Ivory Coast	22	23	21	19	18	21	19	22
Congo (Kinshasa)	1	1	1	0	1	1	1	0
Guinea	0	0	0	1	0	0	0	0
Madagascar	0	0	4	0	5	4	3	3
Somalia	0	0	0	0	0	0	0	0
Other Western Europe (Spain):	1	2	5	3	2	2	2	3

Source: (27, 41)

United Kingdom. In 1966, the United Kingdom ranked fifth in volume of imports among the major markets of the world. In 1962, Jamaica and the Windwards accounted for about 70 percent of the market, most of the remainder came from West Cameroon. However, in late 1963, Cameroon lost its preferential position as a member of the Commonwealth. Its share of market has consequently decreased to less than 1 percent in 1967-69, owing to the imposition of duties amounting to about \$21 per ton and consequent effects on competitiveness of fruit from this area. The market share of the British West Indies has thus increased to about 96 percent of the total in 1966 and 98 percent of that in 1967-69 (table 20). Caribbean and other Latin producers have been effectively excluded from competing in this market by a quota of a mere 4,000 tons of bananas from the dollar area (38).

The system of trade preferences within the British Commonwealth dates back to 1932. Virtually all production for export in Jamaica and the Windwards goes to the United Kingdom. In Jamaica, production of bananas is fostered by the All Island Banana Growers' Association (AIBGA), while purchasing, handling, shipping, and marketing functions are handled by the Jamaican Banana Board. The actual transport and marketing of bananas is handled by two companies, Elders and Fyffes Ltd. and a Jamaican firm. The sole importer from the Windward Islands, is Geest Industries, Ltd. This company played a major role in the rapid expansion of the industry since 1952. The original impetus arose from supply shortages in Jamaica caused by windstorm and disease damage to production. In recent years, competition between the Windwards and Jamaica has become increasingly severe with the result that expanded production in both areas in late 1964 and early 1965 gave rise to larger than usual supplies and consequent downward pressures on prices.

This competition, keen though it is, takes place completely within the system of preferential treatment. Given the traditional system of preferences and the established commercial links described above, there is little to suggest a radical change in the trade patterns of United Kingdom banana imports. Although suitable land for expanded production in Jamaica and the Windwards is limited, a large upsurge in demand most likely could be met through increased yield per acre in these areas.

The major potential factor that could cause changes in U.K. trading patterns is the possibility of U.K. entry into the EC. In that event, it is possible that banana imports would become subject, at least to some extent, to a common policy such as a 20-percent ad valorem duty on bananas produced by non-members coupled with some reduction of quotas on imports from those areas. Such a development could allow competition for the U.K. market to arise from the relatively lower cost producing areas of Central America, Colombia, and Ecuador. However, such developments depend upon a host of unpredictable variables including competitive political bargaining. For these reasons, existing trade patterns of the United Kingdom will tend to remain relatively stable until such time as political changes make possible new market competition.

Other Western Europe. 5/ With the exception of Portugal, none of these nations are tied exclusively to a single supplier or group of suppliers. Austria and

5/ See definition on page 2.

Table 20.-Market share of United Kingdom's banana imports, 1962-69

Country	1962	1963	1964	1965	1966	1967	1968	1969
-- 1,000 metric tons --								
Total	377	365	355	378	373	355	347	358
British Territories	264	277	304	358	359	346	335	351
Jamaica	150	151	162	185	195	183	153	149
Windwards	114	126	142	173	164	163	182	202
South America	9	3	10	5	0	1	5	3
French Territories	0	0	0	0	0	2	1	1
Africa (West Cameroon)	82	69	24	10	7	1	1	1
Other Western Europe (Spain)	22	15	17	5	6	5	5	2
-- Percent --								
British Territories	70	76	86	95	96	98	97	98
Jamaica	40	41	46	49	52	52	44	42
Windwards	30	35	40	46	44	46	53	56
South America	2	1	3	1	0	1	1	1
French Territories	0	0	0	0	0	0	1	0
Africa (West Cameroon)	22	19	6	3	2	1	0	0
Other Western Europe (Spain)	6	4	5	1	1	1	1	1

Norway allow duty-free entry, Denmark and Sweden have low ad valorem tariffs. Only Switzerland and Finland impose relatively high duties. In no case are these duties preferential. Much of the reason for this situation can be tied to the fact that these nations did not have traditional ties with former colonies and territories.

The competition for these markets has been in the aggregate, between Latin American producers, on the one hand, and the Spanish Canary Islands on the other. Some countries, especially Greece, have increased their imports from Israel in recent years. The Canary Islands' share of the market as a whole has diminished in recent years from 25 percent in 1962 to less than 5 percent of the market in 1967-68. This shift is probably due to factors of price and quality competitiveness. Among the South and Central American producers, significant gains in market shares were shown only by Ecuador, Colombia, and Honduras, while the Guatemalan share dropped from about 18 to less than 4 percent during 1962-68. The Dominican Republic's share of 17 percent in 1962 dwindled to nil in 1966 and 1967. Costa Rica supplied a few thousand metric tons and Panama entered the market for the first time in 1966 (table 21).

Ecuador increased its share of the market in Austria, Switzerland, and Denmark during 1962-68. Much of this increase was facilitated by the availability of transport services, especially in Hamburg. A large share of the Colombian increase took place in Norway and Sweden. All Colombian fruit is shipped to Europe, either in company ships or in chartered boats belonging to German and Swedish interests. Honduras increased its shipments during 1962-68, most importantly to Austria and Switzerland. The decline in Guatemalan shipments has been due to declining production. Although plantings of the new disease-resistant variety are well underway, it remains to be seen whether Guatemala can regain its significant market shares in Austria, Norway, Sweden, and Switzerland. Ireland has relied primarily on Jamaica and the Windward Islands for its imports except in 1968 when it shifted 50 percent of its imports to Ecuador.

Analysis of recent developments in Portugal is difficult in the absence of available information. Of the imports recorded in authoritative sources, almost 100 percent comes from Angola which still maintains close commercial ties with Portugal. However, these reported imports would render an absurdly low per capita import rate of about 0.8 kilos per year against an FAO estimate of about 6.0 kilos (13). It can only be concluded that a much larger volume of imports comes into Portugal from Madeira and other overseas provinces and that Portugal, as is true of Spain and the Canary Islands, records these as "domestic" shipments and not as imports (27).

Due to the absence of discriminatory tariffs, most of the shift of market shares within the Other West European countries can be explained by factors of cost competitiveness, improved quality of fruit, and increased shipments in boxes as opposed to stems. Although duties in these countries are relatively low, except for Switzerland and Finland, import costs tend to be somewhat higher than in other relatively open markets such as Benelux or West Germany. This differential is primarily attributable to higher costs of transportation, over water in the case of the Scandinavian countries and over land in the case of Austria and Switzerland.

Table 21.--Market share of Other Western Europe's banana imports, 1962-68

Country	1962	1963	1964	1965	1966	1967	1968
-- 1,000 metric tons --							
Total							
Total	219	209	237	265	300	280	350
Other Western Europe (Spanish Canary Islands).....							
Other Western Europe (Spanish Canary Islands).....	55	43	53	44	39	13	11
Central America and Mexico							
Central America and Mexico	89	88	91	93	104	69	120
British Territories	1	0	0	9	9	13	4
Honduras	10	18	23	29	62	45	68
Costa Rica	0	0	0	1	2	0	26
Panama	3	0	0	19	12	0	4
Dominican Republic	37	31	27	13	0	0	1
Guatemala	38	39	41	22	19	11	11
French Antillies	0	0	0	0	0	0	6
South America							
South America	65	68	83	114	141	183	197
Ecuador	49	43	69	81	81	65	109
Colombia	16	25	14	33	60	88	88
North Africa, West Asia, and Israel..							
North Africa, West Asia, and Israel..	4	5	4	7	8	5	5
East and West Africa, Angola							
East and West Africa, Angola	6	5	6	7	8	10	17
-- Percent --							
Other Western Europe (Spanish Canary Islands)							
Other Western Europe (Spanish Canary Islands)	25.1	20.5	22.3	16.6	13.0	4.6	3.1
Central America and Mexico							
Central America and Mexico	40.6	42.1	38.3	35.0	34.6	24.6	34.3
British Territories .....	.4	.0	.0	3.3	3.0	4.6	1.1
Honduras	4.5	8.6	9.7	10.9	20.6	16.1	19.5
Costa Rica .....	.0	.0	.0	.3	.6	.0	7.5
Panama	1.3	.0	.0	7.1	4.0	.0	1.1
Dominican Republic	16.8	14.8	11.3	4.9	.0	.0	.3
Guatemala	17.3	18.6	17.3	8.3	6.3	3.9	3.1
French Antillies .....	.0	.0	.0	.0	.0	.0	1.7
South America							
South America	29.6	32.5	35.0	43.0	47.0	65.3	56.3
Ecuador	22.3	20.5	29.1	30.5	27.0	33.9	31.1
Colombia	7.3	12.0	5.9	12.5	20.0	31.4	25.2
North Africa, West Asia, and Israel..							
North Africa, West Asia, and Israel..	1.8	2.3	1.6	2.6	2.6	1.8	1.4
East and West Africa, Angola							
East and West Africa, Angola	2.7	2.3	2.5	2.6	2.6	3.6	4.9

Source: (41)

Japan. The explosive growth in Japanese banana imports results from the liberalization of foreign exchange restrictions in 1963. Taiwan, the traditional supplier before World War I, rapidly expanded production to meet this demand. Taiwan has a tremendous geographic advantage over other potential suppliers, especially Ecuador. Four of the six major importing firms import exclusively from Taiwan. There is little reason to expect the predominant share of market enjoyed by Taiwan to decrease significantly over the next decade. Seasonal shortfalls in supply may be filled from Ecuador, as has been the case since 1963. Small amounts have been imported from Mainland China, Thailand, India, the Philippines, and Oceania (table 22). However, these suppliers must experience much improvement in the production and distribution phases to compete successfully with Taiwan for the Japanese market. Recent developments in the Philippines suggest that these improvements are being made and may portend a larger participation in the Japanese market (27). 6/

Central Plan Economies. As of 1966, imports into the central plan economies have been relatively small. Although available data are limited, it appears that the Soviet Union and the East European countries receive most of their supplies from African Countries, notably Guinea, and the Canary Islands. Small shipments from Mainland China, North Vietnam, and India have been reported in the past. There is recent evidence of small supplies from Latin America, especially Colombia, Ecuador, and Honduras (27). Increases in imports and shifts in source of supply for the central plan economies must await changes in overall commercial policy with respect to tropical products.

BANANA CONSUMPTION

World consumption of bananas was 23.3 million metric tons in 1964-66 (table 23). Of this amount, only 4.8 million tons or 20.8 percent entered international trade, primarily as exports of less developed countries to the developed countries. Estimates of banana consumption are highest in the tropical, less developed countries (about 4 times the level in the developed countries) where, because of availability and low price, they are a staple of the diet and a major source of carbohydrates.

Major Markets

While banana consumption is highest in the less developed countries, the major commercial markets for the exports of the LDC's are in the developed countries. These major markets are the United States, Canada, Japan, and Western Europe. These markets in 1964-66, accounted for only 21 percent of world consumption but 92 percent of world imports (table 23). Of the other developed countries, only New Zealand depends upon imports, since Australia is self-sufficient and South Africa imports only a small quantity to supplement local production. Spain, because of the Canary Islands, is an exception to the other developed countries and exports small quantities of bananas. The

6/ In the late 1960's, increased plantings were made by The United Fruit and Standard Fruit Companies along with the Philippine Packing Company (a subsidiary of Del Monte) with the objective of participating more fully in the rapidly growing Japanese market. Preliminary estimates for 1969 indicate that shipments were about 22,000 metric tons, up from less than one ton during 1966-68.

Table 22. --Market share of Japan's banana imports, 1962-69

Country	1962	1963	1964	1965	1966	1967	1968	1969
-- 1,000 metric tons --								
Total	82	256	352	358	416	481	638	739
South America (Ecuador)	33	204	161	35	72	80	246	265
Central America	0	0	0	0	0	0	35	70
Communist Asia	0	0	2	3	5	5	1	2
-- Percent --								
Asia	49	52	189	320	339	396	356	402
Taiwan	49	52	187	315	337	395	356	380
India	0	0	0	0	0	1	0	0
Thailand	0	0	1	5	1	0	0	0
Oceania	0	0	1	0	1	0	0	0
Philippines	0	0	0	0	0	0	0	22

Table 23.--World consumption and imports of bananas, 1964-66

Country or region	Consumption 1/ 1,000 metric tons	Imports	Regional share of world consumption	Regional share of world imports	Regional imports as a share of regional consumption
	-- Percent --			-- Percent --	
United States 2/	1,817	1,817	7.8	37.3	100.0
Canada 2/	190	190	.8	3.9	100.0
EC	1,395	1,395	6.0	28.6	100.0
United Kingdom	366	366	1.6	7.5	100.0
Other Western Europe	533	273	2.3	5.6	51.2
Japan	375	375	1.6	7.7	100.0
Australia and New Zealand	153	29	.6	.6	18.9
South Africa	72	8	.3	.2	11.1
Total developed	4,901	4,453	21.0	91.4	90.8
Eastern Europe	47	47	.2	1.0	100.0
USSR	20	20	.1	.4	100.0
Communist Asia	95	---	.4	---	---
Total central plan	162	67	.7	1.4	41.3
Caribbean	606	---	2.6	---	---
Central America and Mexico	1,693	---	7.2	---	---
South America	8,582	24.1	36.7	5.4	2.8
East and West Africa	991	---	4.2	---	---
North Africa and West Asia	142	48	.6	1.0	33.8
South Asia	3,746	---	16.0	---	---
Southeast Asia	1,338	0	5.7	---	---
East Asia and Pacific Islands	1,199	42	5.1	.9	3.5
Total less developed	18,297	33.1	78.3	6.9	1.8
World	23,360	4,851	100.0	100.0	20.8

1/ Consumption = Production plus imports minus exports.
 2/ On-stem basis.

Source: (8, 9)

largest markets in the less developed countries as classified for this report are Argentina, Chile, Uruguay, Hong Kong, and Singapore. Among the central plan economies, Eastern Europe, although currently importing small quantities, is showing signs of becoming a growing market for bananas.

In terms of importance, the major banana importing and consuming regions and their relative share of world imports in 1964-66 are as follows: the United States (38 percent), the EC (29 percent), the United Kingdom (8 percent), Japan (8 percent), Other Western Europe (6 percent), South America (5 percent), and Canada (4 percent). The relative importance of specific countries within these regions is shown in table 24. Within the Common Market, France and West Germany are by far the largest banana importers, together accounting for almost 70 percent of EC imports. Argentina's imports represent over 50 percent of the LDC imports.

The dynamic postwar growth in banana consumption in the major importing countries is illustrated in table 25. The data covers an 8-year period, 1948-52 to 1957-59; a 7-year period, 1957-59 to 1964-66; and a 15-year period, 1948-52 to 1964-66. ^{7/} The volume of world banana imports grew at a compound annual rate of 5.3 percent over the 15 years observed. The more dynamic increases came during the 1950's when growth was about 6 percent. In almost all cases (where data are available), growth rates in banana consumption and imports were substantially higher during the 1948-52 to 1957-59 period than in the more recent 1957-59 to 1964-66 period. Major exceptions are Japan and Italy, each of which showed very high rates of growth, 41 and 25 percent, respectively, in the mid-1960's. For the overall 15 years, all European countries evidenced faster growth than the United States and Canada. Growth was relatively slow in less developed regions except for Hong Kong, which still is a relatively small market.

The rapid increase in postwar European banana imports may generally be attributed to rising incomes and the recovery of European shipping following the severe interruptions during World War II.

Per Capita Consumption

Per capita consumption of bananas is highest, of course, in the less developed and producing countries where bananas are a staple of the diet. Accurate data on consumption are not available but estimates range as high as 50 to 100 pounds (45 kilograms) per year. In the importing countries, per capita consumption is much lower and is more closely related to the level of per capita income when consumed primarily as a fruit. For example, in high income countries like the United States, Canada, West Germany, New Zealand, and Switzerland, per capita consumption averaged 9 to 10 kilograms per year in 1964-66. In the middle income countries, per capita consumption ranged from 5 to 8 kilograms per year and ranged downward from 5 kilograms in the lower income and lesser developed countries (table 26). There are exceptions

^{7/} The absence of good data for the 1948-52 period precludes calculations of growth rates for some countries.

Table 24.—World imports of bananas; annual averages 1948-52, 1957-59, and 1964-66

Region or country	Imports				Share of world imports	
	1948-52	1957-59	1964-66	1948-52	1957-59	1964-66
-- 1,000 metric tons --						
United States 1/ Canada 1/	1,344 100	1,622 149	1,817 190	60.5 4.5	45.8 4.2	37.6 3.9
EC	330	885	1,395	14.8	25.0	28.8
Belgium-Luxembourg	37	56	82	1.6	1.5	1.6
France	205	330	404	9.2	9.3	8.3
Germany	58	393	559	2.6	11.1	11.5
Italy	16	55	267	.7	1.5	5.5
Netherlands	14	51	83	.6	1.4	1.7
United Kingdom	157	320	368	7.0	9.0	7.6
Other Western Europe	51	161	271	2.2	4.5	5.5
Austria	---	19	48	---	.5	.9
Denmark	---	27	35	---	.7	.7
Finland	---	7	16	---	.1	.3
Greece	10	3	8	.4	.1	.1
Iceland	---	1	1	---	---	---
Ireland	---	6	16	---	.1	.3
Norway	28	27	32	1.2	.7	.6
Sweden 1/ Switzerland	---	45	54	---	1.2	1.1
13	32	57	.5	.9	1.1	
Japan	14	34	375	.6	.9	7.7
New Zealand	10	29	28	.4	.8	.5
South Africa	7	9	8	.3	.2	.2
Eastern Europe	n.a.	8	47	---	.2	.9
Czechoslovakia	n.a.	2	13	---	---	.2
East Germany	n.a.	5	17	---	---	.4
Yugoslavia	n.a.	1	14	---	---	.2
Other Eastern Europe	n.a.	n.a.	2	---	---	---
USSR	n.a.	5	20	---	.1	Continued-- ⁴

Table 24.—World imports of bananas; annual averages 1948-52, 1957-59, and 1964-66—Continued

Region or country	Imports			Share of world imports		
	1948-52	1957-59	1964-66	1948-52	1957-59	1964-66
-- 1,000 metric tons --						
South America	180	244	261	8.1	6.9	5.4
Argentina	139	210	177	6.2	5.9	3.6
Chile	21	19	41	.9	.5	.8
Peru	n.a.	1	5	---	---	.1
Uruguay	20	15	26	.9	.4	.5
North Africa and West Asia	24	38	49	1.0	1.0	1.0
Algeria	---	12	18	---	---	.3
Morocco	---	9	9	---	.2	.1
Syria	---	8	7	.1	.2	.1
Jordan	---	1	2	---	---	---
Arab States	---	7	6	---	.1	.1
Saudi Arabia	---	1	7	---	---	.1
East Asia and Pacific Islands	2	21	42	---	.5	.8
Hong Kong	2	21	21	---	.5	.4
Singapore	n.a.	n.a.	21	---	---	.4
Developed countries	2,013	3,209	4,452	90.7	91.0	91.7
Central plan economies	n.a.	13	67	n.a.	.3	1.3
Less developed countries	206	303	351	9.2	8.5	7.0
World	2,219	3,525	4,870	100.0	100.0	100.0

1/ On-stem basis.

n.a. = Not available.

Source: (3, 9, 13)

Table 25.--Compound annual growth rates of banana imports in selected countries, 1948-52 to 1964-66

Region or country	8 years	7 years	15 years
	1948-52	1957-59	1948-52
	to	to	to
	1957-59	1964-66	1964-66
-- Percent --			
United States	2.4	1.6	2.0
Canada	5.2	3.5	4.4
EC	13.1	6.7	10.1
Belgium-Luxembourg	5.3	5.6	5.5
France	4.9	2.9	4.6
Germany	27.0	5.2	16.3
Italy	16.4	25.3	20.7
Netherlands	17.5	7.2	12.6
United Kingdom	9.3	2.0	5.8
Other Western Europe	15.4	7.7	11.8
Austria	---	14.2	---
Denmark	---	3.8	---
Finland	---	12.5	---
Greece	---	15.0	---
Iceland	---	.0	---
Ireland	---	15.0	---
Norway	---	2.5	---
Sweden	---	2.6	---
Switzerland	11.9	8.6	10.3
Japan	11.7	40.9	24.5
New Zealand	14.2	-.5	7.1
South Africa	3.2	-1.7	.9
Eastern Europe	---	28.8	---
Czechoslovakia	---	30.7	---
East Germany	---	18.3	---
Yugoslavia	---	61.3	---
Other Eastern Europe	---	---	---
USSR	---	21.9	---
South America	3.9	1.0	2.5
Argentina	5.3	-1.4	2.1
Chile	-1.2	11.6	4.6
Peru	---	25.8	---
Uruguay	-3.5	8.2	1.8
North Africa and West Asia	5.9	3.7	4.9
Algeria	---	5.2	---
Morocco	---	.0	---
Syria	---	-1.7	---
Jordan	---	9.1	---
Arab States	---	-1.9	---
Saudi Arabia	---	32.0	---
East Asia and Pacific Islands	34.2	10.4	22.5
Hong Kong	34.2	.0	17.0
Singapore	---	---	---
World	6.0	4.5	5.3

--- due to lack of data in early period.

Source: (9)

Table 26--Trends in per capita banana consumption,
1957-59 to 1964-66

Region and country	1957-59	1964-66	Index 1957-59 = 100
-- Kg. per capita --			
United States 1/	9.3	9.4	101
Canada 1/	8.7	9.6	110
EC	5.3	7.7	145
Belgium-Luxembourg	5.9	8.4	142
France	7.4	8.3	112
Germany	7.2	9.5	132
Italy	1.1	4.7	427
Netherlands	4.6	6.8	148
United Kingdom	6.2	6.7	108
Other Western Europe	3.2	4.9	153
Austria	2.3	6.7	291
Denmark	6.0	7.3	122
Finland	1.7	3.4	200
Greece	.4	.9	225
Iceland	3.9	5.5	141
Ireland	2.0	6.4	320
Norway	7.6	8.5	112
Portugal	4.0	5.9	147
Sweden 1/	6.1	7.8	128
Switzerland	6.2	9.6	155
Japan	.4	3.8	950
New Zealand	12.7	10.6	83
South Africa 2/	.6	.4	67
Eastern Europe	.06	.3	500
Czechoslovakia	.1	.9	900
East Germany	.3	1.0	333
Yugoslavia	.06	.7	1,167
Other Eastern Europe	n.a.	n.a.	---
USSR	.02	.09	450
South America	6.2	5.7	92
Argentina 3/	10.5	8.5	81
Chile	5.5	4.7	85
Peru	.1	.4	400
Uruguay	5.4	9.6	178
North Africa and West Asia	1.0	1.4	140
Algeria	1.2	1.5	125
Morocco	.8	.7	88
Syria	1.9	.9	47
Jordan	.7	.6	86
Arab States	n.a.	n.a.	n.a.
Saudi Arabia	.3	2.4	800
East Asia and Pacific Islands	n.a.	7.6	n.a.
Hong Kong	7.5	5.6	75
Singapore	n.a.	11.3	n.a.

n.a. = not available

1/ On-stem basis.

2/ Total per capita consumption (production plus imports for 1957-59 and 1964-66 was 3.6 and 4.0, respectively.

3/ Total per capita consumption (production plus imports) for 1957-59 and 1964-66 was 10.8 and 12.5, respectively.

to the general relationship between income and consumption in countries like Argentina, Uruguay, Hong Kong, and Singapore. In those countries, bananas are consumed both as fruit and as a vegetable. Data limitations prevent an accurate assessment of the relative proportion consumed as fruit and nonfruit but the average level of import prices in these countries is about one-third to one-fourth the level in the other importing countries, thus suggesting a lower quality fruit and/or different consumption pattern involving bananas as fruit and as a vegetable.

Since 1957, per capita imports in major importing countries have been increasing rapidly, except in the United States, Canada, and New Zealand where annual consumption had already reached an apparent saturation level of 9 to 10 kilograms per person by 1957. During the past 7-8 years, per capita imports in the East European countries and some less developed countries increased only slightly. Even with recent increases in imports, per capita consumption is only about 1 kilogram per year.

Among the major markets, the most dynamic increases took place in Europe and Japan. The greatest growth occurred in countries that consumed less than 5 kilos per person in 1957. Such was the case for Italy, the Netherlands, Austria, Finland, Ireland, Iceland, and Greece. Lower rates of increases occurred in countries where consumption in 1957-59 had already reached 7.5 kilos. Per capita consumption in the United Kingdom grew very slowly during this period -- increasing from 6.2 to 6.7 kilograms.

Annual per capita consumption of all fresh fruits increased in all major countries except the United States and Canada between 1957-59 and 1964-66. During this time, bananas' share of the volume of total fresh fruit consumption increased in all countries except France. The decline in fresh fruit consumption in the United States and Canada may be ascribed to the rapid increase in consumption of processed (especially frozen) fruit products since the mid-1950's. However, in the face of this general decline in total fresh fruit consumption, per capita banana consumption has remained relatively stable since 1957 in the United States and Canada. The relative decline of banana consumption in France may be due in part to increased local production of other fruits, fresh and/or processed.

The data in table 27 for 1964-66 indicates that, in general, fresh fruit consumption is substantially higher in continental Europe than in the United States, Canada, and the United Kingdom. Overall fruit consumption in Japan remains low relative to other countries, thus indicating a large potential for a rapidly growing Japanese market for fruit.

FACTORS AFFECTING CONSUMPTION AND TRADE

The demand for bananas is influenced by many factors: income, price, consumer tastes, competition with other fruits, and trade policies. Each of these factors is interrelated and has an impact upon long-term consumption patterns. For example, the level of income may be a major factor affecting the level of consumption between the various countries, but retail prices, which are in turn influenced by trade restrictions, may influence the actual level of consumption.

Table 27.--Banana consumption in relation to consumption of total fresh fruits,
selected countries, 1957-59 to 1964-66

Country	Bananas		Fresh fruit		Bananas as share of total fresh fruit	
	1957-59	1964-66	Index 1957-59=100	1964-66 1957-59=100	Index 1957-59=100	1957-59 1964-66
-- kg per capita --						
United States 1/.....	9.3	9.4	101	56.0	47.6	85
Canada.....	8.7	9.6	110	53.1	45.5	86
-- kg per capita --						
EC						-- Percent --
Belgium-Luxembourg 1/:	5.9	8.4	142	47.3	50.4	107
France 1/.....	7.4	8.3	112	47.1	66.2	141
Germany.....	7.2	9.5	132	71.2	86.9	122
Italy 1/.....	1.1	4.7	427	70.9	101.2	143
Netherlands.....	4.6	6.8	148	52.3	60.6	116
United Kingdom 2/.....	6.2	6.7	108	44.7	45.0	101
Other Western Europe						
Austria 1/.....	2.3	6.7	291	74.9	89.8	120
Denmark 1/.....	6.0	7.3	122	51.8	71.2	137
Finland.:	1.7	3.4	200	n.a.	n.a.	8.4
Greece 2/.....	.4	.9	225	103.4	110.5	106
Iceland.:	3.9	5.5	141	n.a.	.3	.3
Ireland 2/.....	2.0	6.4	320	24.4	38.9	160
Norway.	7.6	8.5	112	53.4	56.0	105
Sweden.	6.1	7.8	128	60.7	72.5	119
Switzerland.	6.2	9.6	155	87.3	98.9	113
Japan.....	.4	3.8	950	21.4	32.7	153

1/ Fresh fruit includes processed fruit in fresh fruit equivalent.

2/ Fresh fruit includes processed fruit and juice in fresh fruit equivalent.

Source: (36)

Policies Affecting Trade and Consumption

World trade in bananas is not regulated by any formal world-wide commodity agreement. There are, however, policies in individual countries that do restrict imports and affect consumer prices. These policies involve the setting of quotas, tariffs, and internal taxes on consumption. All of these restrictions generally have the effect of raising retail prices of bananas and thus reducing consumption. Quotas and discriminatory tariffs have similar effects by influencing the direction of trade and in lowering the level of effective demand through prices higher than what would prevail under free trade. Under a free trade system, countries would import from the cheapest source available on a c.i.f. basis. The internal tax has the effect of raising retail prices or reducing actual consumption below what would prevail in the absence of the tax.

There are no restrictions on banana imports and consumption in the United States, Denmark, Austria, or Sweden. Limited restrictions prevail in Canada, Ireland, and the Republic of South Africa (table 28). Varying degrees of restriction exist in the other major markets, ranging from an embargo in Spain and quota limitations in Italy, Finland, and New Zealand to no quotas but preferential tariffs for certain producing countries in other major markets. Discriminatory tariffs exist in the United Kingdom, Australia, New Zealand, Portugal, Switzerland, and the EC. ^{8/}

Prior to the adoption by the EC of a Common Custom Tariff in 1968, importation of bananas was subject to the policies of individual countries. With the adoption of the Common External Tariff, all member countries adjusted their rates to the French ad valorem rate of 20 percent for third countries. With the Common External Tariff, the following adjustments were made from the 1957 rates: for Belgium-Luxembourg and the Netherlands, 5 percent (from 15 to 20 percent); for Italy, a reduction of 16 percent (from 36 to 20 percent); and for West Germany, an increase of 20 percent (from 0 to 20 percent). The effective rate for West Germany, however, has not actually resulted in a 20-percent duty primarily because of a special protocol of the Rome Treaty that provided for the setting of annual duty-free quotas based upon the 1956 level of imports. This duty-free quota has been successfully increased each year and in 1969 amounted to 596,000 metric tons, most of which were imported from Ecuador and Honduras. France has always given preferential treatment to the French territories and countries in the franc zone. The net effect of these provisions has enabled France to import primarily from associated states and, in effect, avoid the 20-percent duty on bananas from third or nonassociated countries.

Income

Banana consumption per capita is influenced, in part, by the level of per capita income. The level of income is perhaps the most important factor affecting long-term demand for bananas in countries with per capita GNP of less than \$1,500 per year. In these countries, banana consumption per capita tends to increase rapidly with increases in per capita income. On the other hand, per

^{8/} Information on trade restrictions in this paragraph and in table 28 were compiled by Joseph R. Barse and were taken from his unpublished manuscript, "Developed Countries' Agricultural Import Barriers," ERS, USDA, 1970.

capita banana consumption tends to increase more slowly in those countries where per capita GNP is greater than \$1,500 per year. And, after per capita income reaches \$2,000, per capita banana consumption in all countries tends to level off at an apparent saturation level of about 10 kilos per capita. This relationship between consumption and income per capita for 27 countries in 1957-59 and 1964-66 is shown in figure 2.

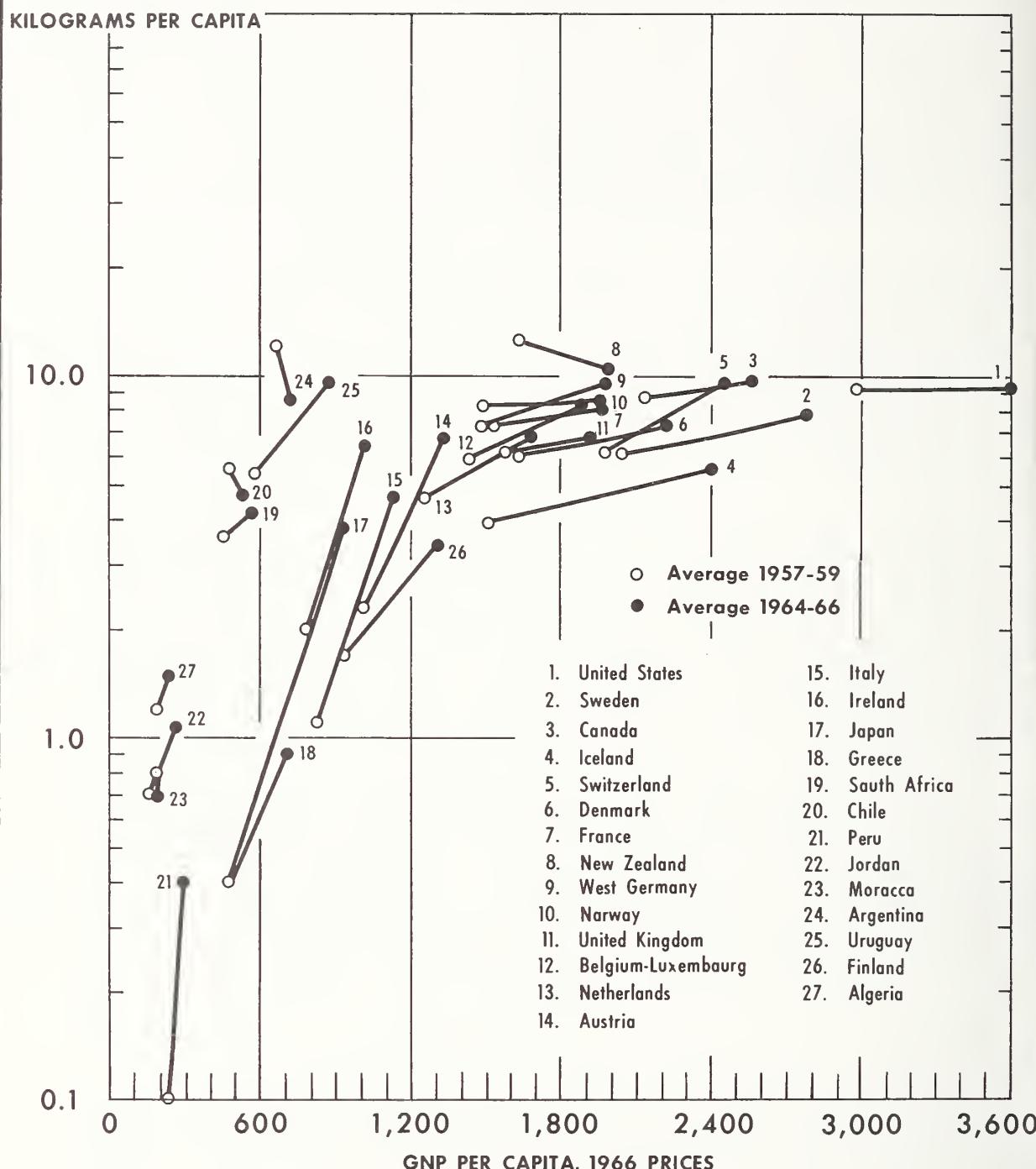
There are two salient features of the data shown in figure 2: the rather uniform pattern of consumption in relation to income in the majority of the 27 countries and the rather sharp divergencies from this uniform pattern in Argentina, Uruguay, Chile, and South Africa. The general pattern of consumption suggested by the majority of the developed countries is that the income elasticity of demand is much greater than one at the lower end of the income continuum, decreases to unitary elasticity at the middle range, and decreases to less than one at the upper end of the income continuum. The general lack of an income response in the four exceptional countries suggests that factors other than income influence the level of consumption in these countries. In each case, the source of supplies is nearby and the unit value of imports is lower than in other importing countries. Uruguay and Chile are close to major producers, while Argentina and South Africa are producers of bananas and import small quantities from neighboring states to supplement their domestic production. The low c.i.f. unit values for bananas in these countries (about one-half the c.i.f. values for the United States) may also reflect differences in the quality of fruit and consumption habits.

A regression line was fitted to the data for 24 of the 27 countries (excluding Argentina, Uruguay, and South Africa) by least squares, $Y = 18.73159 + 7.91398 \log X$. The results of this analysis indicate that a fairly high proportion ($R^2 = 0.68$) of the variation in per capita banana consumption (Y) among these 24 countries can be explained by the level of income per capita (X) in the two time periods (1957-59 and 1964-66). In this analysis, the observations in the two time periods were treated as one time period under the assumption that all variables except income were constant during these years.

A similar analysis was made by Mulherin for FAO (14) earlier, using data for 24 countries (excluding Jordan, Peru, South Africa, Algeria, and Iceland, but including Spain and Portugal) in 1953-55 and 1962-64. The results of this cross-sectional analysis also indicated that a high proportion ($R^2 = 0.77$) of the variations in per capita banana consumption among countries can be explained by differences in the level of income per capita. Both analyses suggest that: (1) per capita consumption is highest in the higher income countries and tends to reach a maximum of about 10 kilograms, (2) the income elasticity of demand (changes in consumption associated with changes in income) declines as income per capita rises, and (3) there is a generalized income consumption function for the majority of developed countries.

The hypothesis of a declining income elasticity is supported, in part, by the different income coefficients in the semilogarithmic functions for the Mulherin analysis (8.645) and the present analysis (7.914). That is, a lower level of elasticities is suggested by the more recent data since the average level of income had risen in all countries. This hypothesis was further tested using 1964-66 data where income and consumption per capita were even higher than in the two previous analyses. The results, shown in the appendix tend to support

PER CAPITA BANANA CONSUMPTION AND GNP, 27 COUNTRIES, 1957-59 AND 1964-66



this hypothesis further. In this analysis, the income coefficient (7.643) was lower and implies a lower schedule of income elasticities over the whole range of the function than in the two previous analyses. Similar results were obtained when a log-log function was fitted to the 1957-59 and 1964-66 data for (1) for all countries and (2) high income (more than \$1,500 per capita) and low income countries (less than \$1,500 per capita). In the log-log function, the income coefficient is directly translated to an income elasticity. The results of these analyses show that a lower income elasticity (1.02) was evident in 1964-66 than for the 1957-59 to 1964-66 period (1.22) when all countries were considered. Furthermore, the income elasticities for both the high income and low income countries also evidenced a similar decline between these two separate time periods, thereby lending further support to a rather rapid decline in the income elasticities as income per capita increases from very low to very high levels.

Several studies in recent years (1, 6, 26, 34, 46) have investigated the factors affecting the long term for bananas. Factors other than income were considered and each study concluded that, when included, income and time were highly correlated; price competition between substitutes such as apples, citrus, and bananas was very limited; and that it is very difficult to separate the influence of income and price on per capita banana consumption because of the high coefficient of intercorrelation between the independent variables (6, 26, 46). Consequently, the relationship between income and per capita banana consumption was found to be the most useful tool for forecasting future demand (46, p. 69).

With these results in mind it was decided to try two additional investigations. The first was to fit a log-log function to the time series data, 1957-66, for each country ($\log Y = a + b \log X$) to determine what the changes in consumption had been in response to changes in income, where Y is per capita banana consumption and X is per capita GNP in 1966 constant prices. This function was chosen because the estimated b coefficient is directly translated to an income elasticity. The results of these regressions are summarized in the appendix.

Although the estimated income elasticities for some of the developed countries appear to be reasonable (0.5 or less), they are exceptionally high for other developed countries, and therefore are unrealistic for projection purposes. For example, the estimated elasticities for Belgium-Luxembourg (1.87), West Germany (0.98), Italy (4.35), Netherlands (1.49), Austria (3.32), Switzerland (1.93), Finland (2.40), Greece (2.28), Iceland (1.84), Ireland (4.08), and Japan (3.76), are much higher than would logically be expected and what has been previously estimated by other researchers. Consequently, these estimated elasticities must be rejected as being unrealistic for projection purposes.

In view of the general nature of the data shown in figure 2, suggesting a leveling off of consumption in high income countries, a second analysis was undertaken using a log-inverse function of the form, $\log Y = a - b/x$. This function is asymptotic to a maximum at infinity and should be useful in quantifying the different aspects of the income-consumption function for bananas for all countries. In this analysis, consumer expenditure per capita are used rather than GNP per capita in an effort to more accurately reflect consumer response.

Table 28.--Restrictions on trade in bananas, selected countries, late 1960's 1/

Continued--

Table 28.--Restrictions on trade in bananas, selected countries, late 1960's 1/--Continued

Country	Quota	Tariff	Internal tax
Sweden	None	Free	Free
Switzerland	None	Ecuador and Dominican Republic \$57.17/m.t.	None
		All others \$45.74/m.t. 3/	
Austria	None	Free on prolonged suspension of \$38.46/m.t. 3/	None
Portugal	None	\$33.39/m.t. overseas territories; other countries \$111.30/m.t. 3/	\$1.39/m.t.
Spain	Import embargo except for about 1,000 m.t. 9/	1-percent ad valorem 4/ plus 8 percent import tax 9/	None
Greece	None	\$140/m.t. and prior deposit 140- percent c.i.f. value 5/	None
Australia	None	\$4.94/m.t. Fiji Islands; all other \$19.76/m.t. 6/	None
New Zealand	Import monopoly, about 24,300 m.t. in 1968 5/	Free Commonwealth countries; \$16.40/m.t., M.F.N.; \$20.50/m.t. all other 7/	None
South Africa	None	5-percent ad valorem 8/	None

1/ Based on compilation in Barse, Joseph R. "Developed Countries' Agricultural Import Barriers", unpublished manuscript, ERS, USDA, 1970. Compilation from sources listed below.

2/ Department of Agriculture. Canadian and U.S. Tariffs on Selected Agricultural Products, Ottawa, Canada 1969.

3/ Food and Agricultural Organization, Bananas: Duties, Taxes, and Other Barriers to Trade, FAO, Doc. CCPIBA, Rome, 1969/70.

4/ International Customs Journal, Spain, 1969.

5/ Greece, Summary of Foreign Trade Regulations, National Bank of Greece, Athens, 1968; and Droits de douanes -- resultant de tarif exterieur commun de la CEE, Athens, 1965.

6/ Australian Customs Tariff (revised). Sydney 1968.

7/ Import Licensing Schedule, 1969-70 Licensing Period, New Zealand Customs Department, Auckland, 1969 and International Customs Journal, New Zealand, 1968.

8/ International Customs Journal, South Africa, 1967.

9/ U.S. Agricultural Attaché Reports from Spain.

The results of fitting a log-inverse function to the 1964-66 data for 27 countries yielded the following equation:

$$\text{Log } Y = 3.06886 - 1.82246 (1/x), R^2 = 0.67 \\ (0.25655)$$

The results of this analysis are shown graphically in figure 3. The stability of this function is verified by the successive exclusion of Argentina and Uruguay. Each exclusion raised the R^2 value without materially affecting the values of the coefficients. For example, when these two countries were excluded together from the analysis the equation was:

$$\text{Log } Y = 3.06189 - 1.80499 (1/x), R^2 = 0.81 \\ (0.18636)$$

The log-inverse function implies a decline in the absolute value of the elasticity coefficient proportional to the increase in per capita expenditures. For example, as consumer expenditures approach infinity, the elasticity approaches zero and the consumption reaches a saturation level. The income elasticity coefficient is computed as follows: $2.3026 b/x$.

The implied elasticity for given levels of consumer expenditures per capita in 1964-66 ranged downward from a high of 2.10 at \$200 per capita to 0.70 to \$600, to 0.42 at \$1,000, and to 0.21 at the \$2,000 expenditure per capita. These estimated elasticities appear to be eminently more logical and realistic for projection purposes than those generated by the time series analysis or those implied in semilogarithmic functions for all countries in 1957-59 and 1964-66.

The curve in figure 3 most accurately describes the banana consumption function under the hypothesis of declining income elasticity and a saturation level of consumption. The changes in per capita banana consumption are very similar in the rapidly growing countries with per capita expenditures between \$600 and \$800 in 1964-66. These relationships are similar even though tastes and consumption habits differ considerably in countries like Japan, Italy, and Ireland. In the more industrialized and highly developed countries, similar consumption responses are evident as income rises, that is, per capita consumption tends to level off as it approaches the apparent saturation level of 10 kilos. There is some evidence that per capita consumption might decline, for example, in the United States, at very high levels of per capita income, thereby suggesting that bananas might become an inferior good for very high income consumers.

Market Prices

The effect of retail prices on per capita banana consumption is difficult to determine because of the various institutional factors that create imperfect competition at the wholesale level and the notable lack of good retail price data. The lack of comprehensive and reliable price data makes it extremely difficult to measure price trends and their effects upon consumption. Available data suggest that retail prices of bananas have declined in recent years (1960-66). These trends are reflected in the data in tables 29 and 30 on wholesale and retail prices for selected countries. These data have been deflated by the wholesale and retail prices in national currencies to reflect changes in real prices.

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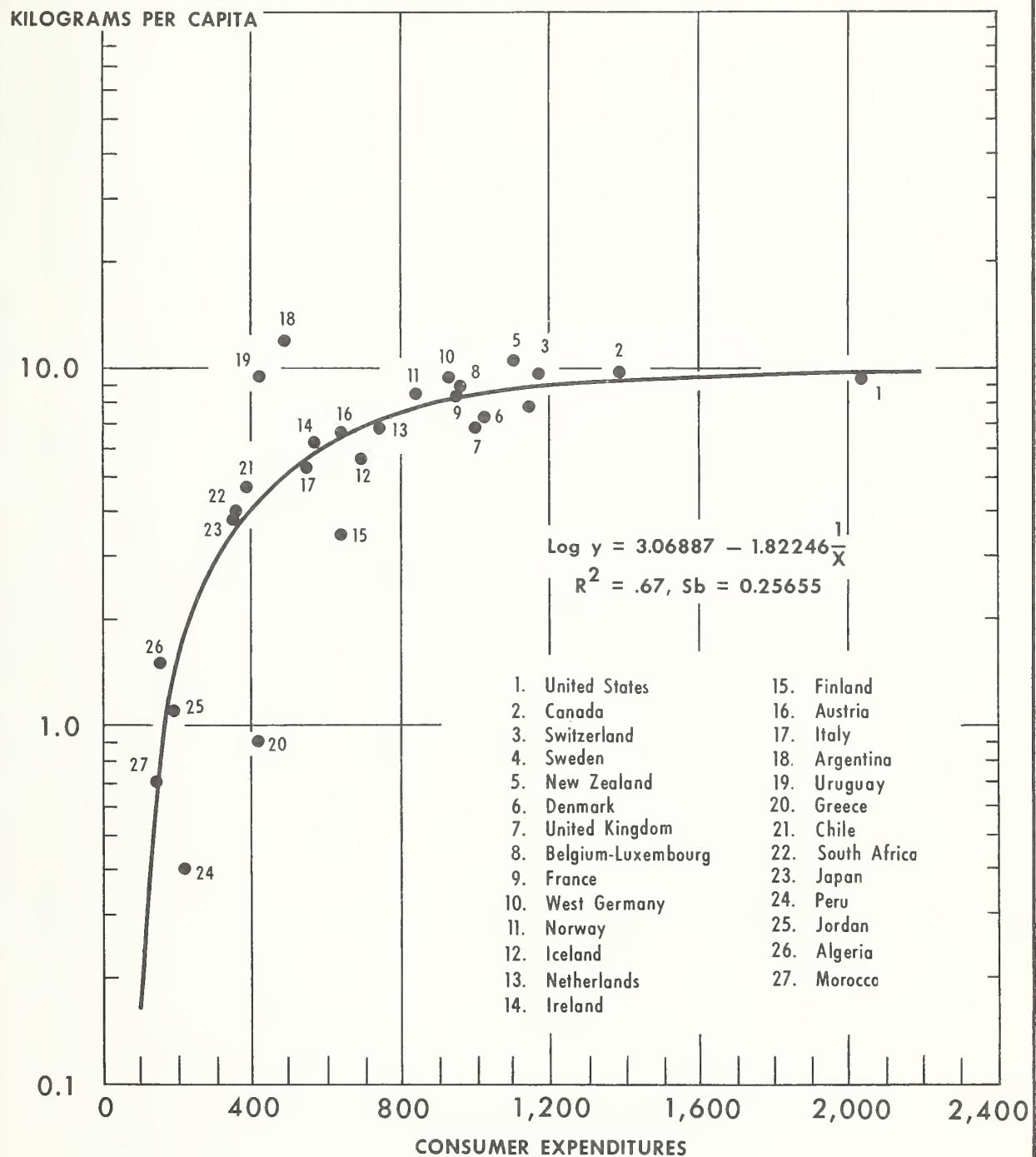


Table 29.--Average wholesale prices in current values and index
of real prices in selected countries, 1960-66 1/

Year	United States 2/		United Kingdom 3/		West Germany 4/		France 5/	
	Bunches : Cartons	Cartons	Bunches : Cartons	Cartons	Bunches : Cartons	Cartons	Bunches : Cartons	Cartons
-- U.S. dollars per ton --								
1960	143	---	281	---	133	---	201	198
1961	139	---	296	---	138	---	198	196
1962	133	---	275	---	140	---	225	225
1963	126	168	282	147	132	130	235	235
1964	---	170	304	---	158	158	249	249
1965	---	159	269	---	136	136	243	243
1966	---	154	267	---	136	136	243	243
Index of real prices 6/1960 = 100								
1960	100	---	100	---	100	---	100	96
1961	97	---	106	---	103	---	96	92
1962	93	---	99	---	102	---	92	103
1963	88	100	99	107	95	100	105	110
1964	---	101	103	---	92	100	105	110
1965	---	93	91	88	84	84	84	84
1966	---	88	88	88	84	84	84	84

1/ The prices shown below should be regarded as useful trend indicators only as they are not directly comparable.

2/ United States: Central and South America, f.o.r. importer to wholesaler, New York.

3/ United Kingdom: Jamaica, wholesale price, London.

4/ West Germany: f.o.r. importer to wholesaler, Hamburg.

5/ France: f.o.r. French ports, until 1964 Guadeloupe, thereafter, Martinique.

6/ Deflated by index of wholesale prices.

Source: FAO (19, p. 2)

Table 30.--Average retail prices for bananas in selected countries, 1960-66 1/

Year	United States	Canada	France	West Germany	Italy	United Kingdom	Norway
-- U.S. cents per kilogram 2/ --							
-- Index of retail prices, 1960 = 100 3/ --							
1960	35.1	42.8	37.7	33.1	72.5	41.2	50.4
1961	34.8	39.0	34.9	35.5	63.2	39.8	51.4
1962	34.9	38.0	47.5	35.2	56.3	36.7	50.4
1963	34.7	37.8	35.6	34.9	47.5	35.6	49.8
1964	34.7	37.2	49.8	33.9	43.2	36.7	46.2
1965	33.0	35.5	34.7	31.9	50.7	32.9	45.6
1966	31.3	32.6	37.8	28.4	46.4	31.6	44.3
1960	100	100	100	100	100	100	100
1961	99	96	99	103	87	97	103
1962	99	96	98	102	78	89	101
1963	99	96	99	101	66	86	100
1964	99	94	91	98	60	89	92
1965	94	90	89	93	70	80	91
1966	89	83	86	82	64	76	89

1/ Deflated by consumer price index.

2/ Converted to U.S. cents per kilogram using annual foreign exchange rates, International Financial Statistics, July 1967.

3/ Index based on retail prices in national currencies.

Source: FAO (19, p. 2)

Wholesale prices in the United States and West Germany appear to have declined from 1960-66 for on-stem and boxed shipments. They also appear to have declined by 12 percent in the United Kingdom. However, these data suggest that wholesale prices for bananas in France rose by 5 percent from 1960-66.

Retail prices also appear to have declined in major importing countries -- ranging from 11 percent in the United States and Norway to 36 percent in Italy. Canada, France, Germany, and the United Kingdom experienced retail price declines of 17, 14, 18, and 24 percent, respectively. Retail prices in France, when converted to U.S. cents per kilogram, do not appear to have declined. These prices denominated in francs, actually did drop during 1960-66. The discrepancy in indicated trends is the result of changes in the exchange rates used in the process of converting local currency to U.S. dollars. The purpose of this conversion was to provide a rough comparison of retail prices in the several markets, but the paradox shows that this comparison is indeed crude.

In major importing countries, real banana prices in general have declined. Furthermore, the decline has been greater in most instances at the retail level than at the wholesale level.

To ascertain the most important causes of price differentials between countries, it is necessary to inquire as to the structure of prices at the different marketing stages. Though data is again spotty, rough comparisons in price structure may be made with data in table 31, which indicate the several most important price stages from f.o.b. port of origin through the retail level. The prices in this table are based on data for 1965 and 1966.

At most marketing stages, and most importantly, at the retail level, prices in the United States, Canada, West Germany, and the Netherlands are roughly the same. Furthermore, these prices are at the lower end of the spectrum. The highest retail prices appear in Japan, Norway, and Austria. For Japan, price structure data are scarcely available, so that the retail price indicated must be regarded with caution. In the case of Norway and Austria, part of the high retail costs may be attributed to higher transport cost to the national borders. The high cost of bananas at retail in Belgium during this period appears to have been due to the relatively high markup at the retail and the importer level. Part of the reason for high retail costs is the poor food distribution system in Belgium, which is characterized by a large number of small, inefficient retail outlets. Also, the four major importers, as discussed earlier, have had close relations, if not full control, over most of the ripeners. This relationship has created a situation where higher prices may be expected.

Retail prices in the United Kingdom and in France are also somewhat higher than in the United States, Canada, and Germany. In the United Kingdom, the wholesale markup appears somewhat higher than in other countries. In France, the primary reason for a high retail price is the relatively high f.o.b. price at port of origin (table 31). The influence of producer prices and thus the level of retail prices in France, the United Kingdom, and Japan are illustrated in table 32. While these data are sketchy and incomplete, especially for Japan and Italy, they do help to complete a picture of the price structure outlined in table 31, and suggest that production and trade in bananas might be different under free-trade conditions. High cost producers such as Jamaica, the French Antilles, the Cameroons, and Somalia would not be competitive in free European

Table 31.--Estimated prices for bananas, different stages of marketing, selected countries, 1965-66

Marketing stages	Importing country and origin of imports									
	United States	Canada	West Germany	Belgium-Luxembourg	Netherlands	Austria	Norway	France	United Kingdom	Japan
Central America					Latin America					Antilles
					Jamaica					Taiwan
-- U.S. dollars per metric ton --										
F.O.B. Port of origin	105 (35)	105 (68)	75.80 (40)	75.80 (50)	75.80 (50)	75.80 (115)	75.80 (100)	140 (46)	85 (50)	120 (50)
Freight and insurance										
C.I.F.	140 (20)	<u>1</u> /173 (17)	120 (20)	130 (80)	130 (60)	<u>3</u> /195 ---	180 ---	186 (54)	135 (23)	170 (155)
Importer markup										
F.O.B. Importer to wholesaler	160 (80)	190 (40)	140 (70)	210 (90)	190 (70)	---	---	240 (60)	158 (112)	325 (75)
Wholesaler markup										
Wholesaler: Ripeners	240 (110)	<u>2</u> /230 (110)	210 (130)	300 (165)	260 (85)	---	---	300 (95)	270 (120)	400 (180)
Retail markup										
Retail price	350	<u>2</u> /340	340	465	345	400-460	560	395	390	580

1/ Officially listed as f.o.b. but includes freight from United States port of entry to Canadian border. It is more likely the importer's buying price.

2/ Price in Montreal.

3/ Importer's buying price plus freight from port of entry to Austrian border.

Source: FAO (22, p. 2, 6)

markets and would, no doubt, lose some of their market share to more competitive countries in Central and South America. Taiwan is exceptional because its proximity to Japan would still give it a cost advantage in transportation. However, even this advantage might be lost in the future with improved production and transportation techniques by the low-cost producers, if producer costs in Taiwan are not reduced.

The data on prices for bananas in table 32 suggested that a wide variation in import unit prices prevails among countries. Many factors contribute to these variations, some of which are producer costs and thus f.o.b. prices, proximity to markets, type and quality of fruit, as well as the manner of shipment -- in cartons or bunches -- which was undergoing a period of transition during 1964-66. While import unit values have limitations in that they are average prices for bananas from all sources they do provide a basis for a wider range of country and regional comparison than is possible from incomplete data on f.o.b., wholesale, or retail prices. The import unit values for selected countries and regions in 1964-66 are shown in table 33.

The import unit values for bananas are lowest in the less developed countries and highest in the developed countries. There are exceptions, of course, in both developed and less developed countries. For example, in New Zealand and South Africa, import unit values in 1966 were only \$45 and \$60 per ton, compared with \$100 to \$200 in other developed countries. Import unit values in Latin America and the Far East were about \$40-\$50 in 1966, compared with \$100-\$160 in West Asia and North Africa. The low unit values for New Zealand and South Africa are probably due to the close proximity to sources of supplies, while the low unit values in Hong Kong, Singapore, Argentina, Chile, Peru, and Uruguay are probably due to both close proximity to supplies as well as lower quality of fruit than marketed in North America and Western Europe.

Among the developed markets, the import unit values in the United States, Belgium-Luxembourg, West Germany, and the Netherlands rank among the lowest, while those in France, Finland, Iceland, Sweden, Switzerland, Austria, and Italy are highest.

Price and Income Elasticities

Per capita banana consumption has increased in all countries in recent years as a result of the combined effect of falling real prices and rising incomes. The net effects of price and income on banana consumption, however, are difficult to determine because of the high intercorrelation between price, income, and time (26, 27, 34, 46).

Efforts have been made to circumvent this problem of multicollinearity in a recent FAO study (26, 27) by combining a time series and cross-sectional analysis for each country. In this analysis, historical consumption data were adjusted for the long-term income effect (from cross-sectional data) before estimating the direct and cross-price elasticities for bananas, apples, and oranges for six major developed countries from time series data. The results of this study showed that the price competition between bananas, apples, and oranges was very limited and that the estimated direct price elasticities for the United States, Canada, and West Germany were greater than unity, while for

Table 32.--Price and cost estimates for banana exports, selected exporters to selected importing countries, 1964-65

Cost items	-- U.S. dollars --						Bunches	Cartons	Cartons	Cartons	Cartons	Central America : to United Kingdom : New York : Hamburg : to New York :	Jamaica : to New York : France : Kingdon : New York :	Martinique : to France : France :	East Cameroon : to France : France :	Somalia : to Italy : Italy :	Taiwan to Japan :
	Cartons	Cartons	Bunches	Cartons	Bunches	Cartons											
Farm gate price	30	30	---	20-30	---	90	60	63	106								
Box packing	6	6	---	---	---	---		6	---								
Carton	22	22	---	---	---	---											
Transport to wharf	3	3	---	59	47	42	40	5	26								
Taxes	11	11	---	---	---	---											
Stevedoring	4	4	---	---	---	16	---										
Exporters' overhead, margin, etc.	4	4	---	---	---	---											15
F.O.B. cost	80	80	70	79-89	94	148	100	85	147								
Ocean freight, insurance, etc.	32	50	46	25	54	69	76	60	21								
C.I.F. cost	112	130	116	104-114	148	217	176	145	168								
Unloading, miscellaneous expenses	11	14	14	11	10	22	20	10	---								
Importers' landed cost	123	144	130	115-125	158	239	196	155	---								
Importers' overhead, margin, etc.	18	20	10	25-15	17	24	4	---	---								
Importers' selling price	140	164	140	140	175	263	200	---	---								

Source: FAO (15 p. 4)

Table 33.--Import unit value of bananas, 1964-66 1/

Country and region	1964	1965	1966
-- U.S. dollars per metric ton --			
United States	89	105	112
Canada	190	175	169
Japan	157	170	157
EC	158	167	163
Belgium-Luxembourg	104	114	110
France	201	208	206
Germany	125	139	139
Italy	194	190	178
Netherlands	129	136	114
EFTA	185	181	165
United Kingdom	181	171	164
Austria	195	197	178
Denmark	158	165	158
Norway	169	182	176
Sweden	189	204	188
Switzerland	222	215	211
Other Western Europe	161	162	175
Finland	177	185	195
Greece	152	148	157
Iceland	224	221	212
Ireland	143	144	165
New Zealand	46	46	45
South Africa	56	63	60
Eastern Europe	147	145	176
Czechoslovakia	141	133	180
East Germany	142	133	179
Yugoslavia	160	168	171
Other Eastern Europe	151	169	155
USSR	123	119	107
Latin America	46	49	54
Argentina	38	42	42
Chile	100	102	90
Peru	14	8	8
Uruguay	47	51	82
North Africa	153	149	152
Algeria	159	153	164
Morocco	137	135	131
West Asia	140	144	n.a.
Syria	119	115	120
Jordan	141	141	115
Saudi Arabia	151	152	n.a.
Other Arab States	152	152	127
Other West Asia (Hong Kong)	48	51	49
Far East and Oceania (Singapore)	51	44	38
World	130	139	139

n.a. = Not available.

1/ These years cover the transitional period when shippers were converting from stems to boxed shipments and necessarily reflect some questionable unit prices as in the case for the United States for 1964.

the United Kingdom, the Netherlands, and France they were less than unity. The problem of autocorrelation was not altogether surmounted; however, for example, the problem of intercorrelation between price of banana and time for the United States was very high.

An effort was made to derive some estimate of the effect of price on consumption by regressing the deviations from the regression in figure 3 ($y - \hat{y}$) on estimated retail prices (table 34). This regression yielded $(y - \hat{y}) = 4.39196 - 0.08686x$, where x was the level of retail prices in individual countries. The $R^2 = 0.33$ was not significant but does indicate that there is some response to prices by consumers. This type of response was suggested by the historical consumption data in Japan and Italy in response to a lowering of retail prices in Italy and Japan with reductions in trade restrictions in the mid-1960's. Sharp increase in per capita banana consumption in these countries followed these actions and recent consumption data indicate that these higher consumption levels have been maintained since 1964-66. The estimated price elasticity of demand at the means was -0.79. The price elasticities for individual countries are shown in table 35, along with the income elasticities from the present analysis and from a previous study by FAO (34). The price elasticities in the present analysis were generated under the assumption of a uniform income-consumption function and a similar price-quantity demand schedule for all countries. Previous work on price analysis (27, 30) indicates that this assumption might underestimate the price response for the United States, Canada, and West Germany, but more nearly approximate the levels for all other countries.

DEMAND AND CONSUMPTION - 1980

The income elasticity of demand for bananas is a useful tool for estimating future trends in consumption. The manner in which consumption changes with increases in income in 27 countries was shown in figure 2 for the period 1957-59 to 1964-66 and figure 3 for the period 1964-66. While these data suggested a rather general response for the majority of the developed countries, there was at the same time a wide range in income and thus consumption responses to changes in income. These data suggested that increases in consumption have been more than proportional to changes in income for countries at the lower end of the income scale and much less than proportional to income changes at the upper end of the income scale. Consequently, any use of the concept of income elasticity for projection purposes should incorporate the principle of (1) a declining income elasticity, and possibly (2) an approximate saturation level of consumption.

Two alternative projections to 1980 were made. Under alternative I, the function $\log Y_I = 3.06887 - 1.82246/x$ was used under the assumptions that a saturation level existed for banana consumption and that the income elasticity of demand declines as income per capita rises. Under these assumptions, per capita banana consumption grows fastest at a low level of income and then slows down as income continues to grow. Finally, when per capita expenditures reach very high levels, a saturation level of consumption is approached. The absolute level of 11.7 kilograms per capita is reached at infinity. The second alternative (II) utilizes the assumption of a declining income elasticity but has

Table 34. --Estimated and actual consumption of bananas, and retail
prices in selected countries, 1964-66

Country	Consumption			Estimated retail price
	Estimated \hat{y}	Actual y	Deviations (y - \hat{y})	
	-- Kilograms per capita --			
1. United States	9.544	9.4	-0.144	0.3530
2. Canada	8.655	9.7	1.045	.3867
3. Switzerland	8.159	9.5	1.341	.4600
4. Sweden	9.350	7.4	-1.950	.6167
5. New Zealand	7.916	10.8	2.884	.3672
6. Denmark	7.705	7.3	-.405	.4893
7. United Kingdom	7.659	6.7	-.959	.3936
8. Belgium-Luxembourg	7.554	8.4	.856	.3982
9. France	7.510	8.3	.790	.4011
10. West Germany	7.404	9.5	2.096	.3725
11. Norway	7.111	8.5	1.389	.5614
12. Iceland	6.771	5.5	-1.271	.6200
13. Netherlands	6.615	6.7	.085	.3453
14. Ireland	6.366	5.7	.666	.3936
15. Finland	6.045	3.4	-2.645	.8000
16. Austria	6.026	6.6	.574	.4000
17. Italy	5.372	5.2	-.172	.6400
18. Argentina	5.003	12.5	7.497	.2500
19. Uruguay	4.294	9.7	5.406	.2700
20. Chile	3.950	4.6	.050	.2532
21. South Africa	3.617	4.0	.383	.2700
22. Japan	3.605	3.8	.195	.6000
23. Jordan	1.408	1.1	-.308	.3420
24. Algeria .....	.648	1.5	.851	.3630
25. Morocco .....	.573	.7	.127	.3640

Table 35.--Estimates of price and income elasticities of demand for bananas

Country	Price elasticity	Income elasticity	Price elasticity
North America .....	.1/	.2/	.1/
Belgium-Luxembourg .....	.3	.2	.1.1
France .....	.4	.4	-.7
Germany .....	.1	.4	-.7
Italy .....	.7	.7	-.1.1
Netherlands .....	.5	.5	-.1.1
New Zealand .....	.5	.3	-.1.1
United Kingdom .....	.4	.4	-.7
Austria .....	.6	.7	-.7
Denmark .....	.3	.4	-.7
Norway .....	.3	.5	-.6
Sweden .....	.4	.3	-.6
Switzerland .....	.3	.3	-.7
Finland	1.0	.7	-.5
Japan	1.1	1.1	-2.0
			-1.4

1/ (28, 34)
 2/ Based on the data in figure 3.
 3/ Calculated from the regression of the deviations from the regression in figure 3 ($y - \hat{y}$) on the estimated retail price in 1964-66. The elasticity at the mean was 0.79.

no peak consumption level. From its function $Y_{II} = -18.95225 + 8.97799 \log X$, we make the assumption that per capita consumption will continue to rise, but at a declining rate as income rises. The projected per capita consumption levels for 1980 under the two alternatives are shown in table 36.

Projections under the first assumption are calculated by applying the log-inverse function for all countries even though the last five countries in table 36 were excluded when the function was derived from the data in 1964-66. However, even though estimates for these countries are derived from this function for 1980, they should be used with caution and used for illustrative purposes only under the assumption that these estimates would prevail if per capita expenditure were the major factor affecting banana consumption in these countries.

Projections under alternative I show that per capita consumption would increase by 4.8 percent per year in Japan, but less than 1 percent in North America, Sweden, Switzerland, Belgium-Luxembourg, France, West Germany, Norway, and Ireland. Higher rates of growth in consumption would prevail in Denmark (1.4), the United Kingdom (1.8), Iceland (2.2), the Netherlands (1.3), Finland (5.7), Austria (1.2), and Italy (2.6) under these projections.

The results obtained under alternative II with the semilog function yielded significantly higher estimates of per capita consumption for all countries than under alternative I. The per capita estimates for the United States, Canada, and Sweden have been adjusted to a destemmed basis for all alternatives. Under this alternative (II), the United States would increase its per capita consumption by 2 percent a year, a significant increase over the 0.5 percent under alternative I. This estimate may be too high for the United States in view of historical and more recent consumption data. Estimates for the other major importers are lower (below 10 kilograms) and well within acceptable levels.

The results of these two alternatives on total world and regional consumption are summarized in tables 37 and 38. Under these alternative projections, total world banana consumption would increase from 4,608 to 6,515 metric tons under alternative I to a high of 7,252 tons under alternative II. The range in total world imports in 1980 under these two alternatives would represent a growth rate of 2.3 and 3.1 percent per year. The absolute increase in imports over the 1964-66 level would be between 1,907 to 2,644 metric tons. Under both alternatives, the rate of growth in world imports would exceed the world increase in population of 2 percent. At the lower estimated level for the United States, the world's largest market, the increase would exceed the growth in population by only 0.5 percent per year, reflecting a very slow rate of increase in per capita consumption. The rate of growth of banana imports in the EC is estimated to exceed population growth rate at the lowest level (1.3 vs. 0.6 percent), primarily because of the large projected increases in imports by Italy. The largest relative increase in imports is projected for Japan, between 5.7 to 6.0 percent per year or an absolute increase of between 484,000 to 518,000 tons. At this rate of growth, the absolute increase would be more than the actual level of consumption of 375,000 tons in 1964-66.

Table 36.--Estimated income and consumption of bananas, major importers, 1964-66 and 1980

Major importers	Population	Per capita income 1/	Per capita consumption (imports) 2/			Growth rate in consumption, 1964-66		
			1980			Alternative : Alternative I II		
			1964-66	1980	1980	I	II	III
Million								
United States	194.5	241.1	2,044	3,048	7.9	8.5	10.3	.5
Canada	19.6	26.0	1,385	1,948	8.4	9.6	9.6	.9
Sweden	7.7	8.7	1,132	1,764	7.8	8.2	9.2	.3
Switzerland	5.9	7.0	1,159	1,630	9.6	9.1	9.9	-.4
New Zealand	2.6	3.6	1,070	1,398	10.6	8.6	9.3	-1.4
Denmark	4.7	5.2	1,001	1,606	7.3	9.0	9.8	1.4
United Kingdom	54.6	60.7	988	1,410	6.7	8.7	9.3	1.8
Belgium-Luxembourg	9.8	10.5	953	1,574	8.4	9.7	9.7	.5
France	48.9	54.5	943	1,626	8.3	9.1	9.9	.6
West Germany	58.9	62.3	914	1,554	9.5	8.9	9.7	-.5
Norway	3.7	4.2	840	1,449	8.5	8.8	9.6	-.2
Netherlands	12.3	14.2	734	1,230	6.8	8.3	8.8	1.3
Iceland	.19	.24	688	982	5.5	7.6	8.3	2.2
Finland	4.6	5.2	634	1,032	3.4	7.8	8.1	5.7
Austria	7.2	7.4	631	1,104	6.7	8.0	8.4	1.2
Ireland	2.9	3.3	564	905	6.4	7.3	8.4	1.8
Italy	51.5	56.8	538	983	5.2	7.6	7.9	2.6
Argentina	22.3	28.4	493	635	10.8	6.1	6.2	-3.8
Uruguay	2.7	3.2	418	538	9.6	5.4	5.6	-3.8
Greece	8.5	9.1	414	911	.9	7.4	7.6	15.1
Chile	8.8	12.6	386	535	4.7	5.3	5.5	.9
South Africa	17.9	26.7	357	466	4.0	4.8	5.0	1.2
Japan	97.9	111.6	356	1,010	3.8	7.7	8.0	4.8
Peru	11.6	17.6	209	290	.4	2.8	3.1	13.9
Jordan	1.9	3.2	198	240	1.1	2.0	2.4	4.1
Algeria	11.9	18.4	145	181	1.5	1.1	1.3	-2.0
Morocco	13.3	21.9	139	161	.7	.9	1.7	1.7
Portugal	9.2	9.8	265	537	5.0	5.4	5.6	.5
Saudi Arabia	4.3	5.9	225	382	3.2	4.0	4.2	1.5
Singapore	1.9	3.0	325	445	11.2	4.5	4.8	-5.9
Hong Kong	3.8	5.5	275	405	5.0	3/ 5.0	5.0	0.0
South Korea	28.4	42.9	102	131	.1	.5	.1	.0
								11.4

1/ Consumer expenditures.

2/ On a destemmed basis for United States, Canada, and Sweden. Projections were made on a stem basis by: alternative I --
 $\log Y = 3.06887 - 1.82246/X$, and alternative II -- $\log Y = 18.95225 + 8.97799 \log X$.

3/ Assumed constant at the 1964-66 level.

Table 37.--Estimated population, consumer expenditures, and banana imports, 1964-66 and 1980

Importing region	Population		Consumer expenditures		Banana imports <u>1/</u>	
	1964-66	1980	1964-66	1980	1964-66	1980
	-- Million --	-- Dollars --	--	--	-- 1,000 metric tons --	--
United States	194.5	241.1	2,044	3,048	1,544	2,049
Canada	19.6	26.0	1,385	1,948	165	218
EC	181.6	198.4	806	1,386	1,397	1,695
United Kingdom	54.6	60.7	987	1,404	366	528
Other Western Europe	87.7	97.5	557	950	284	451
Japan	98.0	11.6	356	992	375	859
Australia and New Zealand	14.0	18.2	1,023	1,422	29	31
South Africa	17.9	26.0	400	534	8	14
Total developed	667.9	779.4	1,094	1,775	4,168	5,845
Eastern Europe	121.4	138.8	703	1,273	46	97
USSR	230.6	277.3	953	1,800	21	49
Mainland China and other Asian central plan	795.6	1,077.1	109	147	0	0
Total central plan area	1,147.6	1,493.2	340	559	67	146
Central America and Mexico	80.1	128.5	379	555	6	14
South America	166.1	247.2	382	786	241	306
East and West Africa	217.5	315.6	100	133	11	20
North Africa and West Asia	162.5	254.0	244	333	70	127
South Asia	638.1	913.6	100	130	1	2
Southeast Asia	81.1	118.0	104	136	0	0
East Asia and Pacific Islands	198.6	298.9	141	181	44	55
Total	1,543.8	2,275.9	166	224	373	524
World	3,359.3	4,548.5	410	600	4,608	6,515

1/ Destemmed basis for United States, Canada, and Sweden.

Table 38.--Estimated import demand for bananas in major markets, 1980

Country	Banana imports		Absolute increase		Growth rate, 1964-66 to 1980	
	1964-66	: Alternative I	Alternative II	1964-66	1980	Consumption; Population
1,000 metric tons						
United States	1,544	2,049	- 2,483	505 -	939	1.9 - 3.2
Canada	165	218	- 250	53 -	69	1.9 - 2.4
EC	1,397	1,695	- 1,824	298 -	427	1.3 - 1.8
Belgium-Luxembourg	82	95	- 102	13 -	20	1.0 - 1.5
France	404	496	- 540	92 -	136	1.4 - 1.9
Germany	560	554	- 604	-6 -	44	-1 - .5
Italy	268	432	- 453	164 -	185	3.2 - 3.6
Netherlands	83	118	- 125	35 -	42	2.4 - 2.7
United Kingdom	366	478	- 565	162 -	199	2.5 - 2.9
Other Western Europe	284	451	- 498	167 -	214	3.1 - 3.8
Japan	375	959	- 893	484 -	518	5.7 - 6.0
Australia and New Zealand	29	31	- 33	2 -	4	.4 - .9
South Africa	8	14	- 15	6 -	7	3.8 - 4.3
Total developed	4,168	5,845	- 6,561	1,677 - 2,393	2.3 - 3.1	1.0
Eastern Europe	46	97	- 97	51 -	51	5.1 - 5.1
USSR	21	49	- 49	28 -	28	5.8 - 5.8
Total central plan area	67	146	- 146	79 -	79	5.3 - 5.3
Central America and Mexico	6	14	- 14	8 -	8	5.8 - 5.8
South America	241	306	- 318	65 -	77	1.7 - 1.9
East and West Africa	11	20	- 20	9 -	9	4.1 - 4.1
North Africa and West Asia	70	127	- 134	57 -	64	4.0 - 4.4
South Asia	1	2	- 2	1 -	1	4.7 - 4.7
Southeast Asia	0	0	- 0	0 -	0	.0 - .0
East Asia and Pacific Islands	44	55	- 57	11 -	13	1.5 - 1.8
Total less developed	373	524	- 545	151 -	172	2.3 - 2.6
World	4,608	6,515	- 7,252	1,907 - 2,644	2.3 - 3.1	2.0

IMPLICATIONS OF WORLD DEMAND ON EXPORT EARNINGS

Under the assumption of constant prices, export earnings of the banana-exporting less developed countries would increase at the rate of between 2.3 and 3.1 percent per year. At these rates, the value of world imports in 1965 prices would be between 899 and 993 million dollars (table 39). The assumption of constant prices is rather realistic in view of the ability of producing countries historically to expand production and export supplies as rapidly as demand increases. Given the present technology, there does not appear to be a supply problem (46). From 1952-56 to 1964-66, world production increased from 13.3 to 23.1 million metric tons, while exports (world demand) increased from 3.0 to 4.7 million metric tons. In other words, world demand increased 57 percent during this period, while production increased 77 percent. Historical experience would suggest that production will continue to be increased to more than meet any future expansion in demand.

Banana export earnings potentials depend on how fast world demand will increase and whether supplies will be geared to this demand in such a way as to maintain present price levels. Under these conditions, export earnings of all less developed countries can be expected to increase between 2 and 3 percent per year. However, there remains a great deal of uncertainty as to which country or countries will supply this demand. This question will be determined in part by the (1) various factors that influence the supply as indicated previously (2) maintenance or reduction of trade restrictions, (3) growth in demand in particular countries, and (4) national production and export policies in countries having comparative advantages in the different markets.

An analysis was made of alternative I to determine what the effects on export earnings might be if a concerted effort were made to expand banana exports. The results, shown in table 39, indicate that if exports were expanded (assuming alternative I projected quantities of 6,515 metric tons to be the equilibrium quantities), say by 16 percent, to 7,588 metric tons, world import prices would fall by 30 percent, and export earnings by 18 percent. This analysis assumed that current estimated price elasticities would prevail in 1980. Under these conditions, export earnings would not increase as rapidly as projected and many producers, not possessing cost advantages, would be forced out of production if they did not continue to have access to restricted markets.

It is difficult to project banana production or export availabilities with any reasonable degree of accuracy. Due to the shortness of the production cycle, production levels can be increased substantially over the short run to adjust to changes in demand levels. In most major banana-exporting countries, there is more than enough suitable acreage available for expanding supplies. In many cases, the planting of higher yielding Cavendish varieties obviates the need for acreage. Estimates gathered by the Food and Agriculture Organization and in table 40 indicate that world export availabilities could approximate 8 million tons by 1980 (7).

Based on 1965 exports, this would represent an average annual growth of roughly 3.5 percent. The growth rate of import demand from 1957 to 1966 was 4.3 percent, including the relatively stagnant 1960-64 period when growth was less than 2 percent. The 1960-64 growth rate is probably more indicative of the future as more of the developed countries like Japan, Italy, and Austria

Table 39.--Value of banana imports, 1980
(Under alternative demand price and supply conditions)

Importing region	1964-66		1980 constant prices		1980-larger exports 1/		Change with larger exports	
	Quantity	Value	Alternative I		Alternative II		Alternative I	
			value	quantity	value	quantity	value	quantity
	1,000 m.t.	Million	U.S. dollars	1,000 m.t.	Million	U.S. dollars	1,000 m.t.	Percent
Developed countries	4,168	593.4	839.2	930.6	5,845	684.7	6,759	15.6
United States	1,544	158.1	209.8	254.3	2,049	160.1	2,233	9.0
Canada	165	29.2	38.7	44.3	218	29.5	238	9.0
EC	1,397	227.4	275.9	296.9	1,695	220.9	1,939	14.4
United Kingdom	366	62.9	90.7	97.2	528	73.1	607	15.0
Other Western Europe	284	50.5	80.2	88.5	451	68.8	553	22.6
Japan	375	60.3	138.1	143.6	859	128.0	1,138	32.5
New Zealand	29	4.5	4.8	4.9	31	3.6	34	9.7
South Africa	8	.5	.9	.9	14	.7	17	21.4
Communist Bloc	67	9.9	21.4	21.4	146	17.1	168	15.1
Eastern Europe	46	7.4	15.6	15.6	97	12.6	112	15.5
USSR	21	2.5	5.8	5.8	49	4.5	56	14.3
Mainland China	0	0	0	0	0	0	0	0
Less developed countries	373	25.6	38.5	41.0	524	34.0	661	26.1
Central America and Mexico	6	.5	1.2	1.2	14	1.1	18	28.6
South America	241	12.3	15.6	16.0	306	13.7	385	26.0
East and West Africa	11	.6	1.1	1.1	20	1.0	26	30.0
North Africa and West Asia	70	9.6	17.4	19.4	127	15.3	160	26.0
South Asia	1	.1	.2	.2	2	.2	2	0
Southeast Asia	0	.0	.0	.0	0	0	0	0
East Asia and Pacific Islands	44	2.5	3.0	3.1	55	2.7	70	27.3
World	4,608	628.9	899.1	993.0	6,515	735.8	7,588	16.5

1/ Value and quantities for alternative I if exports are increased beyond 6,515 metric tons. That is, if world exports were increased an additional 16 percent, import prices would fall by 30 percent, and value of world imports would fall by 18 percent.

Table 40.--Banana production and export availabilities, 1963-67 and 1980
(Under certain assumptions of growth in production, and export supplies)

Exporting region	1963-67						1980					
	Production		Exports		Imports		Net residual		Export availability		Historical production	
	1,000 m.t.	1/	2/	1/	2/	3/	4/					
Central America and Mexico	3,089	1,362	0	1,727	174	3.4	4,803	1,983				
Costa Rica	486	320	0	166	17	.8	548	361				
Honduras	964	583	0	381	38	2.4	1,376	832				
Panama	536	338	0	198	20	3.6	911	574				
Other	1,103	121	0	982	99	4.9	1,968	216				
Caribbean	1,416	631	6	791	79	2.4	1,832	1,090				
Jamaica and Windward Islands	485	341	0	144	14	5.9	873	614				
French Antilles	336	239	1	98	10	4.8	605	430				
Dominican Republic	236	50	0	186	19	-.7	212	45				
Other	359	1	5	363	36	-6.0	142	1				
South America	10,138	1,781	235	8,592	859	6.2	17,855	3,200				
Brazil	4,558	205	0	4,353	435	5.2	8,209	369				
Colombia	956	259	0	697	70	7.5	1,722	466				
Ecuador	2,964	1,290	0	1,674	167	10.4	5,338	2,323				
Other	1,660	27	235	1,868	187	3.0	2,586	42				
Africa	1,130	420	43	753	75	5.3	2,035	650				
Cameroons	132	90	0	42	4	-1.5	105	72				
Guinea	87	31	0	56	6	1.7	112	40				
Ivory Coast	162	131	0	31	3	16.5	292	236				
Somalia	147	95	0	52	5	8.7	265	171				
Other	602	73	43	572	57	4.0	1,084	131				
Asia and Oceania	6,913	403	455	6,965	696	7.7	12,246	708				
India	3,240	9	0	3,231	323	5.6	5,835	16				
Taiwan	407	279	0	128	13	14.8	733	502				
Malaysia	340	22	0	318	32	1.8	444	29				
Thailand	1,036	4	0	1,032	103	12.3	1,866	7				
North Vietnam	20	6	0	14	1.5	1.0	25	8				
Mainland China	164	20	0	144	14	3.4	271	33				
Other	1,706	63	455	2,098	210	6.5	3,072	113				
Spanish Canary Islands	360	92	0	268	27	4.5	648	166				
South Africa	59	0	8	67	6	2.7	88	0				
World	23,105	4,689	747	19,163	1,910	3.6	39,057	7,797				

1/ Available supplies for domestic consumption, waste, and additional exports. 2/ Assuming 10 percent of net residuals available for exports for all exporters. 3/ Growth in production 1952-56 to 1963-67. 4/ Assuming continuation of historical growth rates if 1963-67 production is reduced to 4 percent. 5/ Assuming continuation of historical growth rates if 1963-67 production is reduced to 4 percent.

approach per capita consumption of 8-10 kilograms, thereby causing the total demand in the developing countries to grow more slowly. Furthermore, our future demand for banana imports are projected to grow at a rate of 2 to 3 percent between 1964-66 and 1980. Unless larger new markets appear, the foregoing indicates a potential oversupply in the world market, with consequent downward pressure on prices received by exporters which could offset the benefits received from larger volume sales. It is likely that, if prices fall sharply over an extended period, production would be somewhat curtailed in an effort to maintain a small imbalance between export availabilities and demand requirements.

Data for 1957-66 indicate that as per capita import demand approached levels of 8 to 10 kilograms per year, such factors as rising incomes and falling prices tend to have a less stimulative effect on demand for bananas. It appears then that import demand in markets which are close to the "saturation point" may be expected to grow at rates only slightly above the growth rates of population. Successful marketing of the fruit in North America, Western Europe, and Japan will depend to a greater extent than heretofore upon the quality of the fruit.

These trends, plus recent developments in the industry, particularly the cartoning of fruit for export and results of conversion to new varieties indicate that the industry is becoming more and more modern in its methods and more highly competitive worldwide.

For producers and economic planners in countries that are heavily dependent on banana exports, the picture described above implies that the successful competitors for shares of the world market must strive for lower production costs, especially less wastage, and more efficient distribution of high quality exportable fruit. In some instances this will require improved internal transportation and port facilities. The cost and timing of shipments will continue to be crucial factors of competitive advantage.

In view of the prospect of an easily expandable supply facing a slowly growing demand, it is expected that producers who presently serve sheltered markets (notably supplies to the United Kingdom, France, and Italy) will make greater efforts to preserve these markets. On the other hand, nonprotected suppliers in Latin America may be expected to continue efforts to liberalize trade policies of national or bloc markets which hitherto have operated to exclude their fruit.

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Appendix table 1.--World imports of bananas, average 1934-38 and 1957-68

Region and Country	1934-38	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
-- 1,000 metric tons --													
-- 1,000 metric tons --													
World imports	2,406	3,303	3,553	3,689	4,092	4,225	4,007	4,283	4,503	5,068	5,364	5,445	5,626
North America	1,352	1,711	1,669	1,790	2,054	2,041	1,732	1,817	1,921	2,081	2,151	2,180	2,233
United States 1/ Canada 1/	1,301	1,569	1,522	1,636	1,882	1,878	1,574	1,654	1,738	1,881	1,941	1,962	2,000
EC	51	144	147	154	172	163	158	163	183	200	210	218	233
Belgium-Luxembourg	22	57	61	63	65	66	64	66	67	69	77	77	78
France	171	307	350	338	349	363	394	360	353	394	460	444	431
West Germany	116	338	423	428	449	470	463	472	484	582	603	601	561
Italy	19	44	62	61	87	103	135	161	164	317	322	319	325
Netherlands	30	47	52	57	60	68	70	72	68	81	99	100	97
United Kingdom	304	319	313	339	350	373	374	363	353	376	369	353	347
Other Western Europe	39	158	170	175	193	212	234	230	250	282	313	340	363
Austria	1	15	17	25	28	28	31	33	40	48	57	59	59
Denmark	4	27	25	25	26	29	32	30	33	33	39	43	41
Finland	3	8	7	7	8	12	14	12	15	16	16	18	17
Greece	---	2	3	4	5	4	5	6	6	8	10	15	24
Iceland	---	1	1	1	1	1	1	1	1	1	1	1	1
Ireland	6	6	5	6	7	11	12	11	14	17	18	19	20
Norway	7	28	29	24	24	27	28	25	27	33	35	37	36
Portugal	0	1	2	2	3	2	4	5	6	7	8	10	17
Sweden 1/ Switzerland	10	42	47	46	46	50	54	53	54	63	68	79	89
Japan	7	28	34	35	45	48	53	54	54	56	61	59	59
Other developed countries	122	28	37	38	42	74	83	256	352	358	416	481	638
South Africa	16	35	39	40	46	39	40	43	41	32	36	36	34
New Zealand	5	13	7	8	12	8	10	11	11	7	6	6	5
Central plan	7	3	7	30	39	59	53	52	51	71	85	114	134
Czechoslovakia	3	1	1	3	4	3	4	5	7	14	18	20	26
East Germany	2	---	---	16	20	26	20	20	16	15	20	28	28
Yugoslavia	---	---	1	1	2	6	7	6	8	15	20	38	36
Other East Europe	2	---	---	---	---	2	2	2	2	4	5	9	30
USSR	2	5	10	13	13	18	20	19	20	22	23	19	14

Appendix table 1.--World imports of bananas, average 1934-38 and 1957-68--Continued

Region and Country	1934-38	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
-- 1,000 metric tons --													
Latin America	185	209	272	255	267	270	259	278	296	292	266	260	260
Argentina	160	175	240	206	191	212	198	201	208	234	213	182	180
Chile	13	12	14	30	43	17	26	32	29	28	43	56	56
Peru	---	---	1	1	2	4	8	11	5	5	4	3	3
Uruguay	10	18	14	12	24	31	20	25	30	24	24	21	17
Other	2	4	6	6	7	6	7	6	6	5	8	4	4
Africa	12	17	35	32	42	38	34	40	41	48	43	44	46
Algeria	5	8	13	14	19	17	16	16	18	25	18	18	11
Morocco	2	7	10	10	12	10	5	8	9	10	10	10	11
Other	5	2	12	8	11	11	13	16	15	14	15	16	24
Asia	9	30	60	47	51	50	70	75	80	81	98	90	79
Hong Kong	n.a.	16	31	17	20	15	16	11	17	18	29	22	21
Syria	n.a.	6	10	8	8	7	8	10	9	5	7	8	7
Singapore	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	20	22	24	21	20	20	17
Iraq	1	4	5	4	5	7	7	7	6	5	6	5	4
Saudia Arabia	1	4	5	6	5	5	6	8	9	12	14	16	14
Other	n.a.	n.a.	9	12	13	16	13	17	15	20	22	19	16

n.a. = Not available.

1/ Converted to stem weights.

Source: (2, 44)

Appendix table 2.--Per capita consumption of bananas in importing countries, 1957-68

Region and country	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
	1/	1/	1/	1/	1/	1/	1/	1/	1/	1/	1/	1/
United States 1/	9.1	8.7	9.2	10.4	10.2	8.4	8.7	9.0	9.7	9.8	8.2	8.3
Canada 1/	8.6	8.6	8.8	9.6	8.9	8.5	8.6	9.5	10.2	10.5	8.9	9.3
EC:												
Belgium-Luxembourg	6.1	6.5	6.5	6.7	6.9	6.9	6.7	6.9	7.0	7.8	7.7	7.8
France	6.9	7.8	7.5	7.6	7.9	8.4	7.5	7.3	8.1	9.3	8.9	8.6
Germany	6.3	7.8	7.8	8.1	8.3	8.1	8.2	8.3	9.8	10.1	10.0	9.3
Italy	.9	1.3	1.2	1.8	2.1	2.7	3.2	3.2	6.1	6.2	6.1	6.2
Netherlands	4.3	4.6	5.0	5.2	5.8	6.0	6.0	5.6	6.6	8.0	7.9	7.6
United Kingdom	6.2	6.0	6.5	6.7	7.1	7.0	6.8	6.5	6.9	6.7	6.4	6.3
Other Western Europe:												
Austria	2.1	2.4	3.6	4.0	4.0	4.3	4.6	5.5	6.6	7.8	8.0	8.1
Denmark	6.0	5.5	5.5	5.6	6.3	6.9	6.4	7.0	6.9	8.0	9.0	8.4
Norway	8.0	8.2	6.7	6.8	7.6	7.7	7.6	7.4	8.9	9.3	9.7	9.3
Sweden 1/	5.7	6.3	6.2	6.2	6.6	7.1	7.0	7.1	8.3	8.8	8.4	9.4
Switzerland	5.5	6.5	6.7	8.3	8.7	9.4	9.3	9.2	9.4	10.1	9.8	9.6
Finland	1.9	1.6	1.6	1.7	2.6	3.1	2.6	3.3	3.5	3.9	3.6	3.6
Greece	.2	.4	.5	.6	.5	.6	.7	.7	1.0	1.2	1.7	2.8
Iceland	4.2	4.1	3.5	3.4	2.8	3.8	4.3	5.1	5.2	6.1	6.5	7.2
Ireland	2.1	1.9	2.0	2.6	4.0	4.3	4.0	4.9	5.9	6.2	6.7	6.9
Portugal	n.a.	3.9	4.1	5.1	5.1	5.6	5.8	6.0	6.0	6.0	---	---
Japan	.3	.4	.4	.4	.8	.9	2.7	3.6	3.7	4.2	4.8	6.3
Other developed countries:												
New Zealand	9.9	14.0	13.7	14.4	12.5	12.2	11.7	9.7	11.3	11.1	10.3	10.3
South Africa	.9	.5	.5	.8	.5	.6	.6	.6	.4	.3	.3	.3
Eastern Europe:												
Czechoslovakia	.1	.1	.2	.3	.2	.3	.4	.5	1.0	1.2	1.4	1.8
East Germany	n.a.	n.a.	.9	1.2	1.5	1.2	.9	.9	1.2	1.2	1.6	1.6
Yugoslavia	n.a.	.1	.1	.1	.3	.4	.3	.4	.7	1.0	1.9	1.8
USSR	---	---	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
Latin America:												
Argentina	8.9	12.0	10.1	9.2	10.0	9.2	9.3	10.2	9.3	7.8	7.8	7.6
Chile	1.7	1.9	3.9	5.5	2.1	3.2	3.8	3.3	3.2	4.9	6.1	8.1
Peru	---	.1	.1	.2	.4	.8	1.0	.5	.4	.3	.3	.3
Uruguay	7.4	5.7	4.8	9.4	11.9	7.4	9.4	11.2	9.0	8.9	7.4	6.1

Region and country	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
<u>-- Kilograms per year --</u>												
Africa:												
Algeria	.8	1.3	1.3	1.8	1.5	1.4	1.4	1.3	2.1	1.5	1.4	.8
Morocco	.7	.9	.9	1.0	.8	.4	.6	.6	.6	.7	.7	.7
Tunisia	.0	.0	.0	.0	.0	.7	.7	.6	.2	.3	.5	2.2
Asia:												
Jordan	2.0	0	0	0	0	0	0	0	1.1	1.0	.6	.0
Syria	1.4	2.3	1.8	1.8	1.5	1.7	2.0	1.8	.9	1.4	1.5	1.1
Hong Kong	6.0	11.0	5.8	6.5	4.7	4.1	3.2	4.8	4.9	7.8	5.9	5.3
Saudi Arabia	0	0	0	0	0	0	1.6	2.0	2.2	2.7	3.3	3.0
Singapore	0	0	0	0	0	0	11.6	12.3	12.9	11.0	10.4	8.5
United States 2/	7.5	7.3	7.7	8.7	8.5	7.0	7.3	7.5	8.1	8.2	8.2	8.3
Canada 2/	7.2	7.2	7.3	8.0	7.5	7.1	7.8	7.9	8.5	8.7	8.9	9.3
Sweden 2/	5.6	5.3	5.2	5.2	5.5	5.2	5.8	5.9	6.9	7.3	8.4	9.4

n.a. = Not available.

1/ On-stem basis through 1966. Reported basis (fully destemmed by 1966).

2/ Destemmed basis.

Source: (2, 44)

Appendix table 3.--Summary of log-log regression analyses of per capita banana consumption and income for individual countries, 1957-66

Country	Constant term (a)	Income elasticity (b)	R ²	Standard error (Sb)	Standard error of estimate
United States	1.36306	-0.11068	0.02	0.26664	0.03016
Canada	-.55017	.44916	.44	.18175	.01949
Belgium-Luxembourg	-5.26784	1.87511	.68	.47048	.04774
France	-.65206	.47757	.40	.20747	.03146
Germany	-.2.25889	.98176	.74	.20972	.03316
Italy	-11.62034	4.34507	.93	.42186	.07880
Netherlands	-.3.95372	1.49081	.79	.27625	.03974
United Kingdom	-.28017	.08648	.44	.18935	.01949
Austria	-.9.55499	3.31977	.92	.33935	.05300
Denmark	-1.18750	.60900	.42	.25754	.04370
Norway	-.56932	.45019	.21	.31549	.04711
Sweden	-.1.76268	.76978	.78	.14858	.02258
Switzerland	-.5.52569	1.92600	.80	.34630	.04183
Finland	-.6.82126	2.39805	.87	.33394	.05300
Greece	-.5.52213	2.27920	.74	.48913	.11480
Iceland	-.5.58465	1.83692	.73	.39827	.05176
Ireland	-11.51045	4.08480	.96	.28943	.04062
Japan	-.9.62971	3.76544	.91	.42443	.14969
New Zealand	3.73309	-.81461	.21	.57657	.05907
South Africa	6.07625	-1.98186	.38	.91874	.11510
Argentina	1.01874	-.02054	0	1.06264	.06633
Chile	-.9.46774	3.71411	.25	2.37524	.20971
Peru	-16.79377	7.17454	.67	2.08517	.22376
Uruguay	5.07207	-1.50000	.03	3.65896	.15514
Morocco	2.53760	-.73972	.01	2.28714	.12099

Appendix table 4.-Summary of regressions of per capita banana consumption and income,
25 countries, 1957-59 to 1964-66

Income group	:	Time period	:	Type of function	:	Constant term	:	Regression coefficient	:
All 25 countries	:	1957-59 to 1964-66	:	Semilog	:	-18.73159	(.81055)	7.91398	0.684
All 25 countries	:	1957-59 to 1964-66	:	Log-Log	:	-2.18173	(.11675)	1.22466	.716
All 25 countries	:	1964-66	:	Semilog	:	-17.80159	(.61348)	7.64261	.699
All 25 countries	:	1964-66	:	Log-Log	:	-1.54773	(.08874)	1.02522	.666
High income countries more than \$1,500 per capita	:	1957-59 to 1964-66	:	Log-Log	:	.85384	(.20226)	.30885	.088
High income countries more than \$1,500 per capita	:	1964-66	:	Log-Log	:	2.18911	(.14906)	-.08686	.009
High income countries more than \$1,500 per capita	:	1964-66	:	Semilog	:	13.95298	(2.75036)	-.1.75992	.011
Low income countries less than \$1,500 per capita	:	1957-59 to 1964-66	:	Log-Log	:	-2.07415	(.32556)	1.17160	.418
Low income countries less than \$1,500 per capita	:	1964-66	:	Log-Log	:	-1.64455	(.24073)	1.05440	.407
Low income countries less than \$1,500 per capita	:	1964-66	:	Semilog	:	-13.98424	(1.10690)	6.12150	.522

Numbers in brackets are the standard errors of the regression coefficient.

Appendix table 5.--Organization of banana importers in selected markets 1/

Country company	Subsidiary (s), Affiliate (a)	Primarily buys from, Produces in	Approximate market share (percent, or number of associated ripeners/total ripeners)
-- Percent --			
<u>United States</u>			
United Fruit Company		Honduras, Costa Rica, Panama	50
Standard Fruit and Steamship Company		Honduras, Costa Rica, Ecuador	30
<u>Canada</u>			
		Similar to United States	n.a.
<u>Belgium-Luxembourg</u>			
Etablissements Spiers and Son	United Fruit (a)	Central, South America	12/49
Coooperative Banacopera	United Fruit (a)	Central, South America	13/49
Leon Van Parijs	:	Central, South America	6/49
G. Konincks Freres	:	Central, South America	17/49
<u>Netherlands</u>			
Internationale Bananen Maatschappij	United Fruit (a)	Central, South America	75/100
Other	:	Belgium	25/100
<u>Germany</u>			
Union Handels und Schiffarts- gesellschaft GmbH	United Fruit (a)	Central America, Colombia	33
Hamburger Bananen-Import- Gruppe	:	Ecuador	25
Hamburger Import Gruppe, Von. 1958	:	Ecuador	20
J.H. Lutten & Sohn	:	Colombia	15
Frucht Import-Gesellschaft Weichert Dutch and Belgian Importers	:	Colombia	7
<u>France</u>			
Compagnie des Bananes	United Fruit (s)	East Cameroon	50
Organization Commerciale de la Profession	:	Ivory Coast	50
Unibana	:	French Antilles	50
Societe d' Importation Franco- Antillaise	:	French Antilles	
Other	:		50
<u>Italy</u>			
L Azienda Monopolio Banane (1935-64)	:		100
Compagnia Italiana Della Frutta (1965)	United Fruit (s)	Somalia	70
ComAfrique (1965)	:	Somalia, Ivory Coast	70
<u>United Kingdom</u>			
Elders and Fyffes, Ltd.	United Fruit (s)	Jamaica, West Cameroon	42
Geest Industries	:	Windward Islands	44
Jamaica Producers' Marketing Company, Ltd.	:	Jamaica	14
<u>Japan</u>			
4 firms	:	Taiwan	
2 firms	:	Taiwan, Ecuador	

n.a. = Not available

1/ Based largely on information for the mid-1960's.

Source: (6,15, 46)

Appendix table 6.--Consumer tastes and habits in the EC

Item	West Germany	France	Italy	Netherlands	Belgium-Luxembourg
-- Percent --					
Proportion of households which consume:					
Bananas	77	92	62	70	78
Apples	72	95	83	95	89
Oranges	83	90	84	96	92
Percentage of banana consumers in each age group:					
2 to 9	66	68	45	40	76
10 to 19	44	61	30	36	63
20 to 59 (male)	21	44	17	25	38
20 to 59 (female)	29	46	21	28	44
60 and over	19	24	11	15	24
Bananas are best suited:					
For one who is ill	32	4	27	4	3
For an employee	6	29	58	11	22
For a manual worker	28	56	51	7	31
Bananas are:					
Generally well-liked	23	53	63	39	48
n.a.	50	34	23	23	42
Difficult to digest	22	79	80	81	69
Used on trips	63	85	87	73	82
Suitable for children					

n.a. = Not available.

(6)

Appendix table 7.--Trends in export unit values, 1957-68
(1958 = 100)

Country	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
Brazil	151	100	51	47	38	37	35	64	73	76	80	87
Colombia	159	100	77	80	77	81	74	81	82	73	86	64
Ecuador	99	100	97	96	93	92	72	72	91	95	94	85
Honduras	105	100	95	84	97	99	102	104	99	98	96	95
Panama	103	100	99	85	90	58	57	94	112	111	128	121
Costa Rica ...	119	100	119	104	91	82	99	109	102	93	92	92
Guatemala	99	100	62	61	63	65	77	60	50	67	66	62
Dominican Republic	93	100	105	109	122	120	126	133	125	128	129	88
Windwards and Jamaica ..	112	100	96	88	93	89	88	97	90	99	102	110
French Antilles	114	100	93	88	91	84	89	113	114	114	115	104
Ivory Coast	93	100	60	54	70	71	80	75	67	65	65	65
Cameroon	133	100	102	102	100	102	100	99	99	98	92	92
Somalia	102	100	105	96	102	101	102	103	104	100	78	82
Spanish Canary Islands	92	100	91	88	82	76	75	80	79	80	79	72
Taiwan	99	100	106	102	122	122	120	142	140	123	116	116
World	109	100	99	93	96	93	89	98	108	108	108	103

Appendix table 8.--Value of banana exports, 1951-60

Region and country	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
-- Million dollars --												
Spanish Canary Islands												
	11.6	9.6	10.2	9.1	10.2	11.2	10.2	11.7	10.5	9.4	5.3	3.9
South America	108.8	99.6	108.3	108.6	99.3	103.2	102.3	107.3	122.7	135.9	137.7	127.2
Brazil	13.3	10.9	4.4	4.6	3.8	3.2	2.9	5.8	6.3	5.5	5.5	5.6
Colombia	26.2	15.5	13.9	13.7	14.1	10.6	13.3	12.4	18.6	22.2	25.0	22.8
Ecuador	69.0	72.9	89.7	89.8	80.9	88.5	85.2	88.1	95.9	105.3	104.7	93.9
Other .....	.3	.3	.3	.5	.5	.9	.9	1.0	1.9	2.1	2.5	4.9
Central America and Mexico	156.4	147.3	145.1	143.9	152.9	136.9	139.3	145.8	186.8	218.8	233.1	263.9
Honduras	33.8	37.7	32.3	28.8	39.5	35.4	33.3	34.3	53.7	72.6	78.8	79.6
Panama	24.4	21.8	23.5	18.2	20.0	11.8	13.7	20.5	30.6	34.8	42.0	53.0
Costa Rica	32.3	26.5	22.3	25.0	18.5	21.2	22.7	28.1	28.3	29.2	30.1	46.4
Guatemala	14.5	13.1	10.2	13.6	11.6	6.8	11.5	7.5	2.9	5.8	7.9	10.0
Nicaragua .....	.1	.1	.1	.1	.1	.8	1.4	2.2	.8	1.2	3.3	3.2
Dominican Republic	2.9	5.0	6.1	11.3	11.8	8.6	5.2	3.4	.8	.1	.2	.2
Other .....	.9	.7	1.2	1.0	.8	.9	.8	.6	.4	.3	.5	.5
Jamaica and Windwards	23.4	19.1	21.7	20.3	22.1	21.1	23.1	28.0	31.3	33.2	33.1	33.1
French Antilles	24.1	23.3	27.7	25.6	28.3	27.2	24.1	19.2	35.2	40.8	37.5	37.9
East and West Africa	25.1	26.0	32.0	33.6	40.3	38.8	45.0	42.8	40.0	34.5	32.9	33.6
Ivory Coast	4.3	6.1	4.3	5.2	8.5	11.5	14.1	12.6	11.3	11.0	12.3	12.7
Cameroun	7.3	4.7	3.8	2.4	9.1	8.7	7.9	7.5	7.7	3.0	2.9	2.7
Somalia	6.4	8.2	9.1	10.4	12.6	11.2	14.2	15.8	15.1	13.7	9.6	10.2
Congo (Kinshasa)	1.5	1.2	1.2	1.3	1.2	.9	.5	.5	.1	.1	.1	.1
Ghana	n.a.	.1	.4	.3	.2	.3	.1	.1	.1	.1	.1	.1
Guinea	5.3	4.4	4.6	6.5	4.5	4.8	3.0	2.2	2.2	2.2	3.2	3.0
Mozambique	n.a.	n.a.	.1	.2	.4	.7	.7	.8	.6	.4	.5	.3
Madagascar	n.a.	---	---	---	---	.1	.5	.7	.9	1.6	1.1	.6
Angola	n.a.	---	---	---	---	.1	.1	.2	.4	.6	1.4	.4
Other	n.a.	8.2	8.3	.6	.4	.2	.2	.3	.4	.4	.4	.5
North Africa and West Asia 1/	n.a.	n.a.	2.2	2.7	3.7	3.7	3.9	3.5	4.1	5.1	4.5	3.6
Israel	n.a.	n.a.	.3	.7	1.7	1.5	2.2	1.8	2.3	2.9	2.9	2.0
Jordan	n.a.	n.a.	.2	.2	.2	.3	.3	.2	.6	.8	.5	.5
Lebanon	n.a.	n.a.	1.3	1.5	1.7	1.7	1.3	1.4	1.1	1.3	1.0	1.0
South and Southeast Asia	n.a.	n.a.	---	---	.1	.2	.2	.3	.7	.3	.1	.1
East Asia and Pacific Islands	2.9	4.8	8.8	8.3	14.6	12.6	13.0	37.6	59.1	56.7	50.1	46.5
China (Taiwan)	2.9	4.8	5.6	5.5	11.0	8.3	8.6	33.3	55.1	53.5	51.8	46.5

Continued--

Appendix table 8.--Value of banana exports, 1957-68--Continued

Region and country	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
-- Million dollars --												
East Asia and Pacific Islands--												
Continued:												
Malaysia												
Oceania and other	---	---	---	---	---	---	---	---	---	---	---	---
n.a.	n.a.	3.2	2.8	2.7	1.0	1.1	1.2	1.1	1.2	1.1	1.2	1.1
Central plan	1.5	3.2	1.7	1.9	1.5	1.8	1.6	2.6	3.1	3.1	3.1	3.1
Mainland China	1.5	3.1	1.5	1.6	1.0	1.2	.9	1.7	2.1	3.4	3.1	3.1
North Vietnam .....	.0	.1	.2	.3	.5	.6	.7	.9	1.0	.5	.5	.3
World total	306.3	290.5	308.3	308.1	322.6	308.4	315.5	351.6	427.0	464.5	471.5	484.6
Reexports:												
United States	n.a.	n.a.	6.1	6.3	6.8	6.4	6.9	9.7	10.6	12.4	12.5	14.4
Other	n.a.	n.a.	1.5	1.6	2.5	2.4	2.5	1.5	4.5	5.0	4.1	2.3
World total (incl. reexport)	316.0	302.1	315.9	316.0	331.9	317.2	324.9	362.8	442.1	481.9	488.1	501.3

n.a. = Not available, nil, or negligible.

1/ Totals include UAR (Egypt), Sudan, Tunisia, and Morocco.

Source: (9, 21)

Appendix table 9.--Exports of bananas, average 1934-38 and 1957-68

Region and Country	1934-38	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
-- 1,000 metric tons --													
Spanish Canary Islands	104	97	74	86	80	96	114	104	113	103	90	52	42
South America	417	1,204	1,282	1,476	1,509	1,448	1,480	1,765	1,797	1,700	1,845	1,797	1,864
Brazil	214	219	271	213	242	216	206	226	216	205	171	171	160
Colombia	162	185	174	203	191	206	147	203	172	253	342	326	401
Ecuador	39	794	829	1,051	1,065	985	1,100	1,340	1,383	1,200	1,265	1,262	1,252
Other	2	6	8	9	11	11	17	16	16	31	33	38	51
Central America	1,464	1,580	1,616	1,650	1,794	1,819	1,742	1,708	1,595	1,988	2,315	2,427	2,839
Honduras	349	339	398	360	363	430	378	344	349	572	786	865	885
Panama	113	291	268	291	263	272	251	298	267	336	386	405	541
Costa Rica	96	310	302	213	273	231	293	262	294	316	359	371	575
Guatemala	168	130	116	146	198	164	92	132	111	51	77	106	143
Nicaragua	48	2	2	4	1	1	11	19	27	8	14	42	42
Dominican Republic	6	55	88	102	182	170	173	120	69	48	11	1	4
Other	256	46	37	38	15	28	13	17	18	15	13	8	13
Jamaica and Windwards	366	231	211	250	255	263	262	290	319	386	370	358	333
French Antilles	62	176	194	248	241	260	269	226	141	256	299	271	303
East and West Africa	139	397	393	372	385	440	436	468	446	434	368	381	379
Ivory Coast	47	35	46	54	73	91	123	133	126	128	127	143	147
Cameroun	61	166	161	125	104	140	131	121	116	119	47	48	45
Somalia	20	43	56	59	74	.84	76	95	105	99	94	84	85
Congo (Kinschasa)	1	36	28	31	34	28	29	21	13	7	7	5	3
Ghana	1	1	2	1	5	5	2	4	2	1	1	1	1
Guinea	n.a.	73	65	67	55	59	44	45	30	25	25	33	31
Mozambique	9	20	13	11	17	12	16	19	20	15	11	14	6
Madagascar	---	---	---	---	---	1	3	11	14	18	33	22	21
Angola	---	---	---	---	1	1	2	2	3	4	6	7	15
Ethiopia	n.a.	3	5	6	9	5	13	12	13	13	18	15	8
Other	n.a.	20	17	18	16	10	2	4	5	5	4	6	8
North Africa and West													
Asia 1/	5	20	27	25	27	34	33	35	29	32	41	36	28
Israel	---	1	2	2	6	14	12	18	13	17	21	21	14
Jordan	1	2	4	3	2	3	3	1	5	8	5	5	5
Lebanon	4	11	16	13	15	16	16	13	14	9	11	10	9
South and Southeast Asia	1	1	2	2	8	13	11	15	12	16	16	7	10

Continued--

Appendix table 9.--Exports of bananas, average 1934-38 and 1957-68--Continued

Region and Country	1934-38	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
-- 1,000 metric tons --													
East Asia and Pacific													
Islands	154	56	81	81	79	126	114	117	257	388	417	430	388
China (Taiwan)	138	25	41	45	46	77	58	61	201	337	370	382	341
Malaysia	---	---	1	1	1	18	20	22	24	21	20	20	20
Oceania and other	16	31	39	35	32	31	36	34	32	30	27	28	29
Central plan	---	16	33	18	21	16	19	16	26	28	36	28	20
Mainland China	---	16	32	15	18	11	13	9	17	19	32	25	19
North Vietnam	---	---	1	3	3	5	6	7	9	9	4	3	1
World total	2,284	3,371	3,508	3,710	3,903	3,992	3,949	4,228	4,275	4,689	5,128	5,158	5,570
Reexports:													
United States	n.a.	31	33	39	42	42	41	49	63	57	65	61	78
Western Europe	10	10	6	1	11	10	13	5	6	20	29	25	9
World total (including reexports)	2,294	3,412	3,547	3,750	3,956	4,044	4,003	4,282	4,344	4,766	5,222	5,244	5,657

n.a. = Not available.

1/ Totals include UAR (Egypt), Sudan, Tunisia, and Morocco.

Source: (9, 21)









